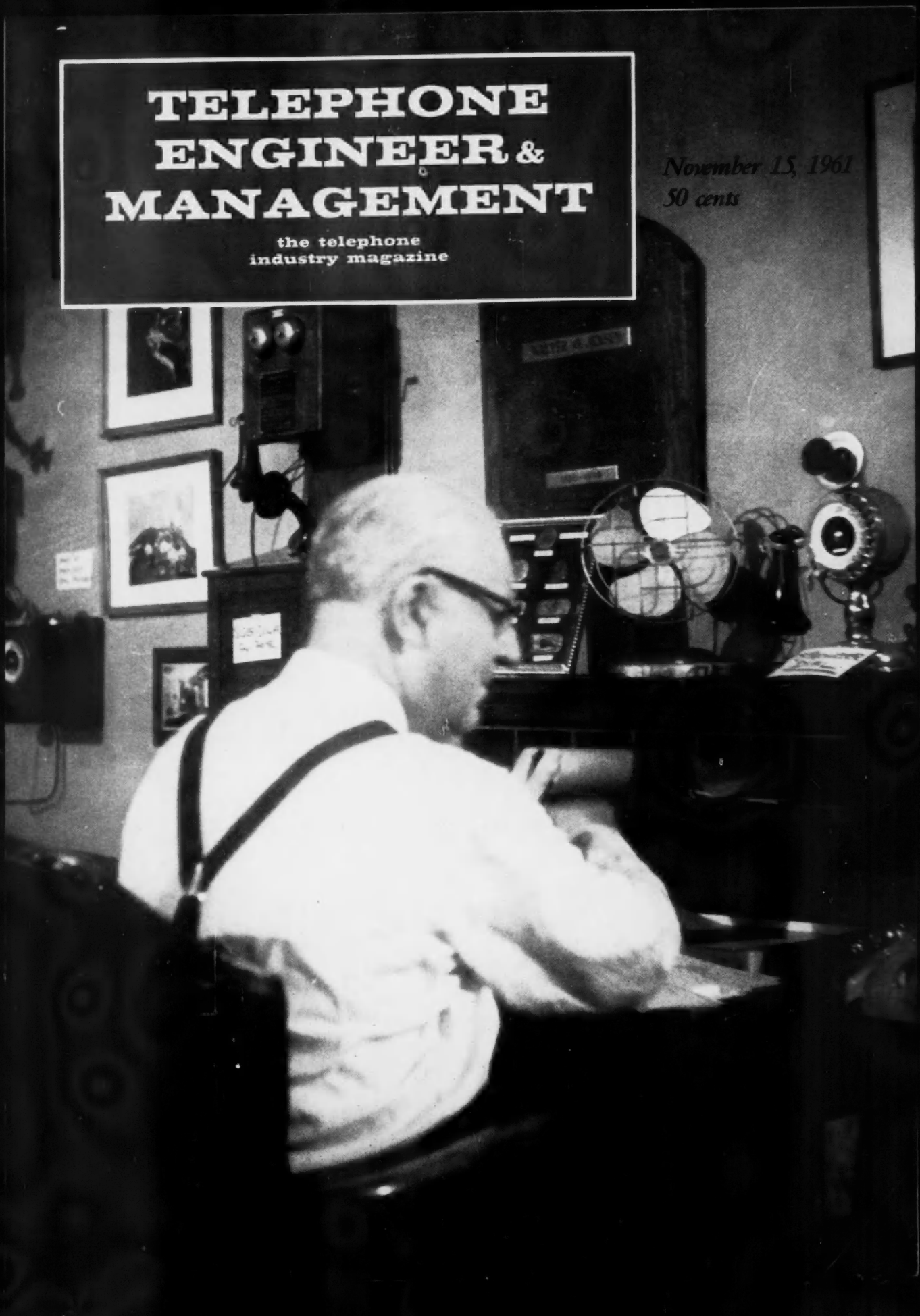
TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

November 15, 1961
50 cents



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THE TE&M FRONT COVER:—Walt Jensen reminisces at his desk in his *museum* office surrounded by antique telephone equipment in a scene from "The Independent," a new 28-min. film sponsored by the U.S. Independent Telephone Association. Film produced by Parthenon Pictures, Hollywood, is designed to be *your* movie – the movie you might make about your own company if it were practical to spend the money. It is designed for you to show at your service club luncheons, at meetings of your women's clubs, church men's classes, Farm Bureau and Grange meetings, Chamber of Commerce gatherings, in your schools; to use as the key attraction for a company open house or an anniversary party, or a get-together evening for your employes. For complete information write U.S. Independent Telephone Assoc., 438 Munsey Bldg., Washington 4, D.C.

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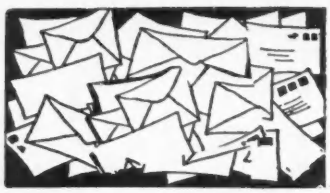

LETTERS to the editor

"They're On The Way"

To The Editor: — Our client, Preformed Line Products Co., is interested in purchasing about 250 copies of the article entitled "Pursuit of Excellence" which appeared in your September 1 issue starting on page 34. Will you please let me know whether you are planning a press run on this article, whether a small run would be available if you are not planning a larger run, and what the cost would be in either case? Thank you for your usual fine cooperation.

L. A. Schweizer,
The Bayless-Kerr Co.,
Cleveland, Ohio.

Glad You Like Them

To The Editor: — Please find attached four copies of a reprint of your editorial "Freedom to Compete" in the September 1, 1961, issue of *Telephone Engineer and Management*.

I have watched your editorials with interest since working on the *Seminar* in Galveston. I wish to congratulate you on the theme of these editorials and the publication of your magazine.

Thank you for the permission to reprint these editorials for our use.

J. P. Youngblood,
District Plant Supt.,
Southwestern Bell Tel. Co.,
Austin, Tex.

Area Codes in Ads

To The Editor: — I have just finished reading your September 15 issue. Having been a subscriber for about 35 years, I feel privileged to make some critical comments of a constructive nature.

On page 96 there is an extract article from the *Illinois Bell* outlining the importance of showing area codes, with which I am sure you are in sympathy. However, on page 114 I find an advertisement for the Bohnsack Equipment Company in Germantown, N.Y. The local telephone number is provided but no area code is shown. It would appear to be appropriate to show 518 as the area code.

This is particularly desirable in a magazine such as yours that is read nationwide. There is material advantage in giving the call to an operator with the NPA added, if the call is being made on a manual basis. And, of course, it would greatly facilitate DDD operation in calling a distant place, since it is not necessary to call information for the area code.

In reviewing the magazine for additional examples, I am somewhat amazed to discover that in almost every case where a telephone number is shown, the area code is missing.

Further, there are a great many advertisements included in which no telephone number is shown at all. It would appear desirable to have telephone numbers and TWX numbers, where appropriate, included in all advertisements in which a response is invited. This would make it just a little easier to place an inquiry or an order and would add to the telephone industry service to its public.

Gilbert B. Lamb,
Traffic Equipment Engineer,
New York Telephone Co.,
New York, N.Y.

Ehinger to Ehinger

To C. D. Ehinger: — Your article "Boosting Revenues from Booths and Paystations," published in the July 15 issue of *Telephone Engineer and Management* gave me quite a pleasant surprise. As you will note, I am one of the few who can share your pride by having the name of Ehinger. From my travels and personal experience, this is a very rare coincidence indeed.

In addition to this, I was delighted at the liberal use of illustrations featuring Alcoa booths in your aforementioned article because of my responsibility with the Sales Dept.

In line with the general thought of your article, I am forwarding you some information we are currently running as an advertising campaign in *Architectural and Engineering News* magazine. The purpose of our program is to get architects and engineers to think and plan for telephone booths as part of the over-all design of any building structure.

I will look forward to following your articles in future issues.

Nelson N. Ehinger,
Aluminum Company of America,
New York, N.Y.

Request From England

To The Editor: — My attention has been drawn to the article entitled "Long Range Functions of Traffic" by W. A. Kern which appeared in *Telephone Engineer and Management* of Nov., 1960. This article would be of very great interest to our readers, and I should be glad to have your permission to reproduce it. Due acknowledgement of the source would of course be made.

S. Wright,
Telecommunications Traffic Assoc.,
Kent, England.

Two Articles Score

To The Editor: — Please send me reprints of these articles, which appeared in the Sept. 15, 1961, *Telephone Engineer and Management* magazine: "Proper Protective Measures Preserve Outside Plant," and The Telephone Notebook — "How's Your Attitude Today?"

Arthur R. Anderson,
Oak Machinery Corp.,
Copiague, N. Y.

Case of the Correct Address

To The Editor: — The September 15th issue of *Telephone Engineer and Management* contained an editorial that was of considerable interest to both my boss and myself.

In this editorial we were asked to write to a certain address in New York City for further information regarding the subject. I immediately wrote for this information, and in a few days received my letter back marked "unknown."

I waited a few days more and sent the letter again. A second time it was returned to me with this same explanation. Therefore, I am wondering if the address might have been misprinted in your magazine.

(The editorial appeared on page 41 of the September 15th issue.)

Mrs. Sara P. Albion,
Secretary to Superintendent,
Anaconda Wire & Cable Co.,
Sycamore, Ill.

Thank you for bringing this mistake to our attention, Mrs. Albion. Here's the correct address: 2 East 48th St., New York 17, N.Y.

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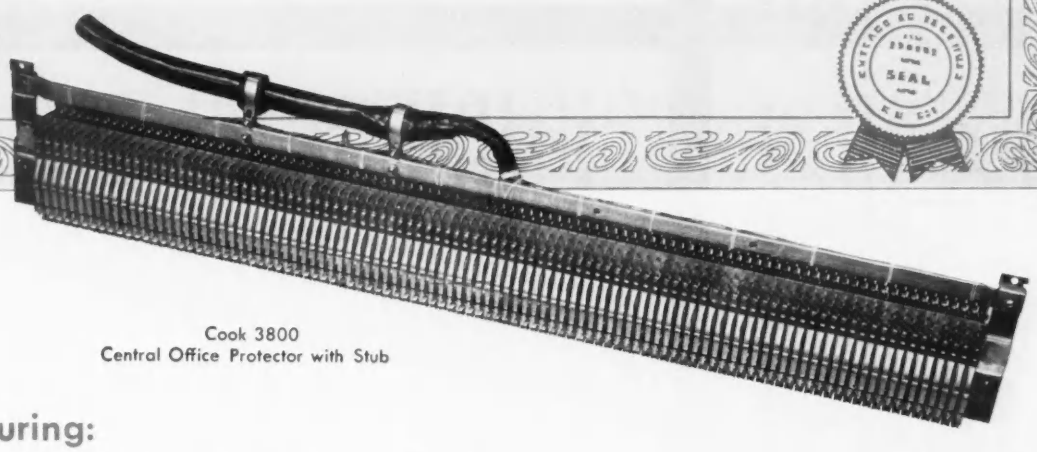

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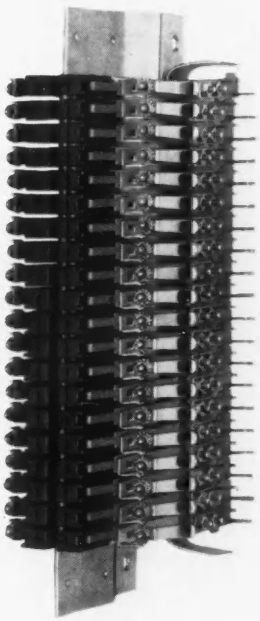

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■ Want to *know what's ahead* for the telephone industry in 1962? You'll *find the answers* in the Jan. 15, 1962 "*Telephone Industry Forecast & Survey Issue*" of TELEPHONE ENGINEER & MANAGEMENT.

■ This big, information-packed issue will feature state-by-state reports on the *growth of the telephone industry* in 1960 and 1961 — and *forecasts of the industry's growth for* 1962.

■ From cover-to-cover, the Jan. 15, 1962 "*Telephone Industry Forecast & Survey Issue*" of TELEPHONE ENGINEER & MANAGEMENT will be an issue you will want to read and retain for future reference.

■ Just to sample what's coming, check the following list of the exclusive features you'll find in the Jan. 15, 1962 TE&M . . . Then — enter your *personal subscription* to TE&M. That's one way of making sure you will receive a copy (you can keep) of TE&M's "*Telephone Industry Forecast & Survey Issue*" and the 23 other important issues TE&M will publish in '62.

1 — INDUSTRY FORECAST

"TE&M's SECOND ANNUAL TELEPHONE INDUSTRY FORECAST & SURVEY."

By John G. Reynolds, Editor of TELEPHONE ENGINEER & MANAGEMENT.

A new year means the start of a new growth period for the communications industry and the reappearance of such questions as — "*Will station gains continue?*" . . . "*Will operating revenues increase?*" . . . "*Will expansion—improvement projects continue?*"

These and many other questions will be answered by TE&M's survey of operating data supplied to its research department by the nation's telephone companies.

By text, charts, graphs, and tables, the lead article in the Jan. 15, 1962, "*Telephone Industry Forecast & Survey Issue*" of TE&M will:

(1) Present a complete statistical summary of the telephone industry, giving growth data for the 3-year period 1960-1962.

(2) Report the total gross construction additions planned by the telephone industry for 1962.

(3) Indicate state-by-state trends in telephone growth, gross construction additions, and gross operating revenues.

(4) Tell the story of progress made by the Independent telephone industry, the REA-financed companies, and the Bell System in 1961 and their plans for 1962.

2 — GROWTH DATA

"TE&M's 1961 SURVEY OF THE TELEPHONE INDUSTRY."

By TE&M's Research Department.

In 1960, 404 of the nation's telephone companies responded to TE&M's request for operating data. This year over 2,000 of the nation's telephone companies are being asked to provide complete information on their operations for 1960, 1961 and forecasts for 1962.

Using the data provided by the companies, TE&M's Research Department will build a report that will provide telephone growth data on each state for 1960, 1961 and 1962. In 15 or more tables this important report will discuss:

(1) Number of exchanges operated in each state.

(2) Number and types of central offices in operation.

(3) Summary of dial, common battery and magneto telephones in service in each state.

(4) A state-by-state report on gross construction additions — outside plant, central office, station equipment, land and buildings, etc.

(5) Summary of total communications plant in service by states, 1960, 1961, 1962.

(6) State-by-state trends in telephone growth, revenues, and expenditures for expansions and improvements for 1960, 1961, and 1962.

3 — OPERATING DATA

"TELEPHONE INDUSTRY STATISTICS."

By TE&M's Research Department.

What's happened to the U. S. telephone industry since 1956? You'll find the answer to that question in the statistical section of TE&M's "*Telephone Industry Forecast & Survey Issue,*" in charts and tables giving the year-by-year story on the telephone industry's growth from 1956 through 1961.

Exclusive tables and charts prepared by TE&M's Research Department will present statistics on:

(1) Telephones in service.

(2) Operating companies — Independent and Bell.

(3) Number of exchanges.

(4) Investment in telephone plant.

(5) Gross operating revenues.

(6) Number of employes.

(7) Growth data — Independent, Bell and total telephone industry.

(8) Data on equipment produced by the communication equipment manufacturing industry — telephones, dial C.O. equipment, dial PAX equipment, manual C.O. equipment, telephone booths, cable terminals.

(9) Reports comparing the telephone growth of each state with the growth in population as indicated by U. S. census reports.

4 — WASHINGTON

"THE SECOND YEAR OF THE NEW FRONTIER."
By Fred Henck, Executive Editor of "Telecommunication Reports," Washington, D. C., and TE&M's Washington Editor.

What about the "New Frontier" and its effect on the communication industry and business in general?

That question and others will be answered by Mr. Henck in an exclusive report scheduled for publication in the Jan. 15, 1962, *"Telephone Industry Forecast & Survey Issue"* of TE&M, as the author draws upon his many years of Washington experience to point up to some significant guideposts of major importance to the communication industry.

5 — PLANT FORECAST

"THE 'NEW' IN TELEPHONE PLANT IDEAS."
By John S. Reed, Technical Editor of TELEPHONE ENGINEER & MANAGEMENT.

Just as it has in the past, telephone plant improvements will highlight the telephone industry's progress in 1962.

TE&M's Technical Editor, John S. Reed, is preparing a special article for the Jan. 15, 1962, issue of TE&M describing the new ideas that will speed plant expansions and improvements.

By text and illustrations, Mr. Reed's article will discuss:

(1) New prewiring methods.

(2) New types of construction trucks.

(3) Buried plant.

(4) Use of carrier and microwave to increase the number of available circuits.

(5) Improved types of aerial lifts.

(6) Satellite communications.

6 — ENGINEERING FORECAST

"BETTER TRANSMISSION IN 1962."
By C. D. Ehinger, President, Citizens Telephone Co., Decatur, Ind.

Better transmission is constantly becoming more important to all telephone companies and it will continue as a number one objective of the industry in 1962.

Mr. Ehinger's article will discuss the methods telephone companies are using to obtain good volume, faithful reproduction of the speaker's voice, freedom from echo and background noises, safety from electrical hazards, and emphasize that each company must give adequate attention to transmission maintenance.

7 — COMMERCIAL FORECAST

"IN 1962 MEET YOUR PUBLIC AT THE SERVICE CLUB LEVEL."
By Allan R. Stacey, Vice President, Sunland-Tujunga Telephone Co., Sunland, Calif.

The author of TE&M's popular feature department "Commercial Department Notes" believes telephone companies will have many communication stories to tell their customers in 1962. In this exclusive article, written for the Jan. 15, 1962, *"Telephone Industry Forecast & Survey Issue"* of TE&M, Mr. Stacey discusses modern methods of presenting a telephone company program to a community service club.

8 — SMALL COMPANY

"THE SMALL COMPANY JOB IN 1962."
By Bill Corman, Manager, Southland Telephone Co., Atmore, Ala.

What's ahead for the small telephone company?

In a special article, prepared for the Jan. 15, 1962, *"Telephone Industry Forecast & Survey Issue"* of TE&M, Mr. Corman will answer that question, and present proved-by-experience solutions to many of the problems that are causing trouble for some of the nation's telephone companies.

9 — TRAFFIC FORECAST

"PEOPLE — TRAFFIC's VIEW FOR '62."
By D. A. Perigo, General Traffic Manager, West Coast Telephone Co., Everett, Wash.

Is the Traffic Department's biggest problem in 1962 going to be people?

Author Perigo believes it will be, and in a special article, prepared exclusively for the Jan. 15, 1962, *"Telephone Industry Forecast & Survey Issue"* of TELEPHONE ENGINEER & MANAGEMENT, he presents a workable plan for meeting what may well be one of the industry's most pressing problems.

ENTER YOUR PERSONAL ORDER

Demands for this unusual issue will be heavy. If you depend on a copy being routed to you by someone else in your office, you might be disappointed. Why not order your own individual copy sent to your home or office on the 1st and 15th of every month (24 big issues each year) for only $4.00? Use the Order Form below.

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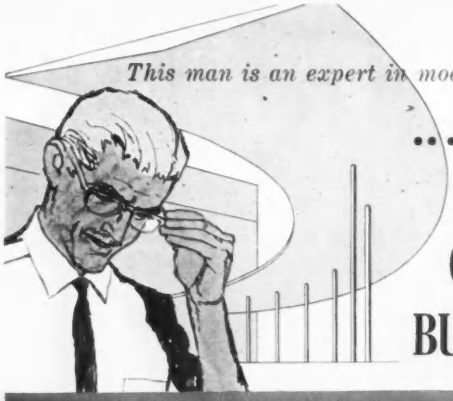

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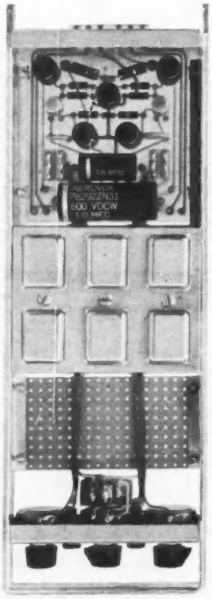

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NORTH CAROLINA Tel Assoc., Carolina Hotel, Pinehurst, N. C., Dec. 4-5.

NATIONAL Tel Coop. Assoc., Jung Hotel, New Orleans, La., Jan. 15-17, 1962.

MINNESOTA Tel. Assoc.,Radisson Hotel, Minn., Minn., Feb. 25-28, 1962.

KENTUCKY Tel. Assoc., Phoenix Hotel, Lexington, Ky., Mar. 6, 1962.

TEXAS Telephone Assoc., Sheraton-Dallas Hotel, Dallas, Texas, Mar. 11-13, 1962.

IOWA Tel. Assoc., Roosevelt Hotel, Cedar Rapids, Ia., Mar. 19-20., 1962.

OHIO Tel. Assoc., Deshler Hilton Hotel, Columbus, Ohio, Apr. 3-4, 1962.

WISCONSIN Tel. Assoc., Plankinton Hotel, Milwaukee, Wisc., May 8-9, 1962.

INDIANA Tel. Assoc., Claypool Hotel, Indianapolis, Ind., May 9-10, 1962.

MISSOURI-KANSAS Tel. Assoc., Town House Hotel, Kansas City, Kan., May 21-22, 1962.

ILLINOIS Tel. Assoc., Abraham Lincoln Hotel, Springfield, Ill., May 24-25, 1962.

PENNSYLVANIA Tel. Assoc., Bedford Springs Hotel, Bedford, Pa., June 4-6, 1962.

NEW YORK Tel. Assoc., White Face Inn on Lake Placid, Whiteface, N. Y., June 11-13, 1962.

CALIFORNIA Tel. Assoc., Jack Tar Hotel, San Francisco, June 13-14, 1962.

WASHINGTON-OREGON Tel. Assoc., Sheraton Hotel, Portland, Oregon, June 21-22, 1962.

NEWSLETTER
TELEPHONE INDUSTRY

Prepared By The Editorial Staff of TELEPHONE ENGINEER and MANAGEMENT

ON THE 1st OF EACH MONTH ★ ON THE 15th OF EACH MONTH

Dear Sir: November 15, 1961

1961 EDITION OF BELL SYSTEM'S "NOTES ON DISTANCE DIALING" NOW AVAILABLE. This is technical guide for expansion of distance dialing throughout the telephone industry. "Notes" designed to serve as general reference for telephone industry on distance dialing. Includes sections on present, future distance dialing procedures, numbering plans (All Number Calling), distant information service, and universal code for central NPA information switching plans, interoffice signals (elimination of flashing signals, transmission (via net loss factors) and maintenance (code test lines and test numbers). Technical charts and diagrams included. Guide produced by the AT&T with cooperation of USITA's Subcommittee on Nationwide Dialing and REA telephone engineering staff. Independent companies may obtain copies of "Notes" from associated Bell companies.

J. WARREN SAFFORD, PRESIDENT OF TROY-TIPP TELEPHONE, INC., announced last month firm's board of directors unanimously has approved reorganization plan under which company will become subsidiary of General Telephone & Electronics Corp. Special meeting of shareholders of Troy-Tipp Tel. was set for November 8, for approval of board's recommendation. Present directors continue as directors of reorganized company, Safford said. GT&E's major subsidiary in Ohio is General Telephone Co. of Ohio, headquartered in Marion. Safford said all present personnel continue in employment, and it is expected will secure additional employe benefits. Company operates two dial exchanges at Troy and Tipp City, operating about 13,000 telephones in Miami and Montgomery counties. GT&E represents largest Independent telephone system in nation with subsidiary operating companies in 32 states. General of Ohio operates more than 215,000 telephones in 72 Ohio counties.

SPACE PROGRAM DELAY CONDEMNED . . . In Chicago last month, James E. Dingman, executive vice president of American Tel. & Tel. Co., said that government red tape is holding up America's space communications program. "We want to get our system (of space communication satellites) up before the Russians do," he said.

He added that the nine companies already in the overseas communications business, upon prodding by the Federal Communications Commission, had reached a workable agreement on getting the space system started . . . "If we (the communications industry) got the go ahead now, we feel confident we could have a workable satellite communications system operating late in 1964 or early in 1965," he said.

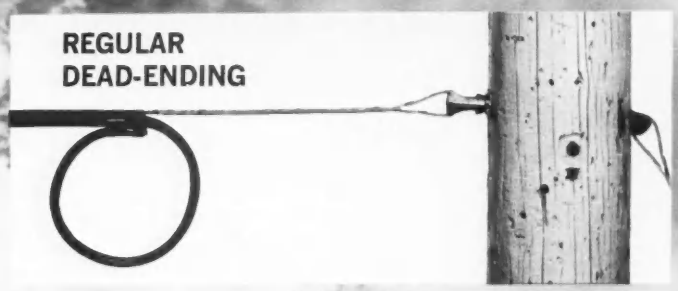
A proposed global system using six satellites placed in orbit around the earth's equator at a height of 22,300 miles could be built — including ground equipment — for from $175,000,000 to $200,000,000, he said. The participating U.S. firms would probably have to pay only half of this, he said, with participating foreign interests financing the other half. Dingman stated this outlay is small in comparison with the $2,640,000,000 that AT&T will invest in new equipment in 1961 alone. Dingman spoke to more than 400 persons at a meeting of the Western Society of Engineers.

GENERAL TELEPHONE & ELECTRONICS CORP. ANNOUNCES RECORD SALES AND REVENUES FOR THIRD QUARTER OF 1961 . . . Net sales and revenues amount to $306,976,000 for third

FIGURE Preformed

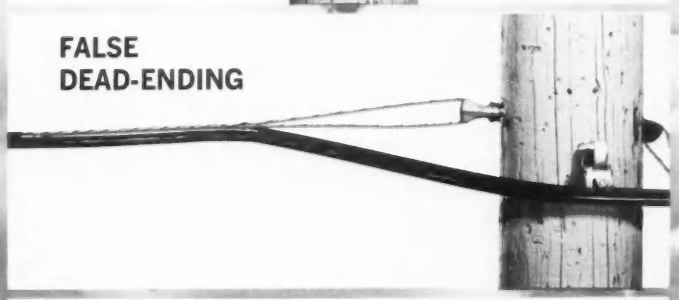
TRADEMARK

REGULAR
DEAD-ENDING

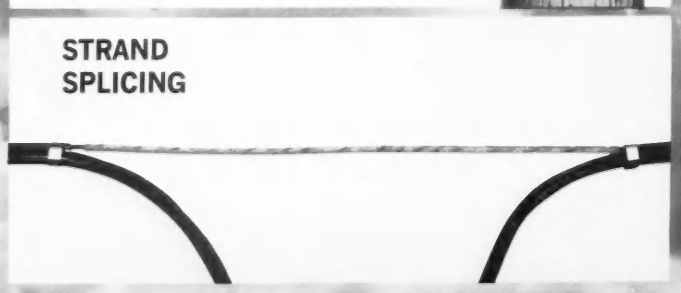


DOUBLE
DEAD-ENDING

FALSE
DEAD-ENDING



STRAND
SPLICING



PREFORMED Telephone Accessories can be obtained through leading local and national telephone suppliers.

Made in accordance with or for use under one or more of the following U. S. Patent Numbers: 2,691,865; 2,761,273; other patents pending.

You can look up to Preformed
TRADEMARK

FOR FIGURE EIGHT

Integrated Messenger Cable

PREFORMED attachments **increase** the advantages of integrated messenger cable. Because these products eliminate cutting of the supporting strand, the strand and cable continue to function as an integrated unit. Installation is simple — no strand to thread, no jaws to seat; safety is visible — no bolts to tighten, no clamps to slip.

PREFORMED Dead-Ends and Strand Splices are designed to hold the full rated strength of the strand and provide fast, inexpensive installation wherever needed.

Secure these increased savings **now** on integrated messenger cable installations — figure PREFORMED for Figure "8"!

PREFORMED LINE PRODUCTS COMPANY

5349 St. Clair Avenue • Cleveland 3, Ohio • UTah 1-4900 (216*)
600 Hansen Way • Palo Alto, California • DAvenport 4-2561 (415*)

*Long-Distance Direct-Dialing Area Code

(Concluded from page 9)

quarter of 1961, as against $294,193,000 for same period in 1960. Net income figures for same period amount to $17,345,000 for 1961 compared with $18,041,000 for 1960. "If the current trend continues," said Donald C. Power, GT&E chairman & chief executive officer, "our net earnings from telephone operations should reach $50 million for 1961. This is in contrast to $42.8 million in net income for telephone operations for 1960."

Earnings per share for third quarter of 1961 amount to 24¢ on 70,612,000 average shares outstanding. This compares with 26¢ for comparable period in 1960 on 70,014,000 average shares.

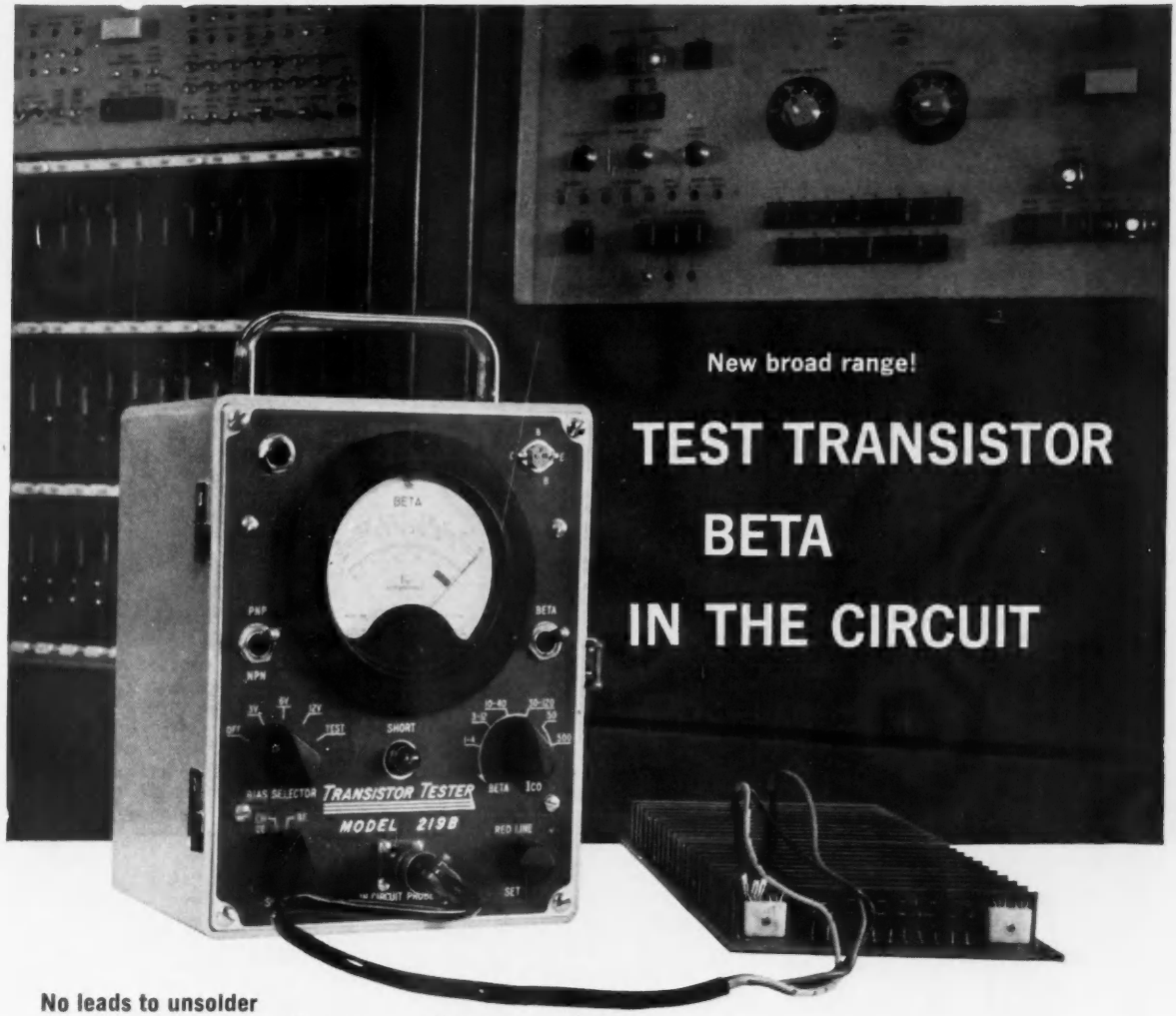
Reviewing nine months figures, Power reported net sales and revenues for 1961 were $891,616,000 as against $875,503,000 for 1960. Net income for same period was $49,883,000 in 1961 against $53,221,000 for 1960. Earnings per share were 70¢ on 70,593,000 average shares outstanding compared with 77¢ on 68,601,000 average shares outstanding in 1960.

Power indicated lower net income from manufacturing subsidiaries had not been offset by improvement in net income from telephone operations. "Much of this problem," he said, "can be traced directly to the fall off in some of our consumer lines as a result of the recent economic recession. We see definite signs that this situation is improving. In our Sylvania subsidiary the third quarter earnings will be better than the sum total of its first two quarters and, as Sylvania's fourth quarter is historically its best period from an earnings point of view, the trend is definitely favorable. Continuing progress in more effective cost controls and improved distribution channels will materially improve Sylvania's operating results."

WESTERN UNION COMPLETES NATIONWIDE PRIVATE LINE SYSTEM FOR HUTTON FIRM . . . 40 brokerage offices of E. F. Hutton & Co. now connected in one complete transcontinental communications and data processing private line network, with cutover to operation of new Chicago center serving nine-state area, Western Union Telegraph Co. announced last month. Customers of Hutton & Co. offices now receive same-day confirmations of orders and billing information over 26,000-mile private line network, which includes communications and data processing centers in Los Angeles and New York.

CASH DIVIDEND PAYMENTS BY COMPANIES in communications industry issuing public reports amounted to $96,900,000 in September, compared with $94,600,000 in same month of 1960, to bring totals for nine-month period to $935,400,000 this year, against $883,300,000 a year ago.

PARAGUAY TO CONSTRUCT RADIOCOMMUNICATIONS SYSTEM LINKING MAJOR WORLD POINTS. PROJECT FINANCED BY $1 MILLION DLF FUND LOAN . . . The Administracion Nacional de Telecommunicaciones (Antelco), government agency operating telecommunications systems of Paraguay, invites bids for project covering installation of high-frequency radiocommunications system linking capital city, Asuncion, with Hamburg, Germany, New York City, Rio de Janeiro, Montevideo and Buenos Aires. System financed by $1 million loan of Development Loan Fund, with procurement of equipment, supplies, and services limited to U.S. sources, except for items procured with Paraguayan currency in Paraguay. Engineering of system done by H. O. Bixby Associates, Inc., in Asuncion. Contract matters handled by Major Miguel Guanes, contracting officer, Antelco, Embassy of Paraguay, 1825 Connecticut Ave., Washington 9, D. C., from whom bidders can obtain information.



New broad range!

TEST TRANSISTOR BETA IN THE CIRCUIT

No leads to unsolder
Four overlapping Beta Ranges • High meter resolution
Direct reading with test circuit power off

New Sierra 219B 4-range Transistor Tester reads Beta directly in the circuit; also measures I_{co}, Beta out of circuit.

Less downtime and less danger of damage to transistors under test with this new Sierra instrument—battery-operated, light weight, portable, easy to use.

Maintenance, quality control, incoming inspection and production testing are just a few of the applications where you save time and money by testing transistors, even complete assemblies, without unsoldering leads. Model 219B reads Beta in the circuit, 1 to 120. I_{co} is measured on a straightforward basis; collector potentials of 3, 6 or 12 vdc may be selected. All controls are on the front panel . . . an instrument of convenience, speed, accuracy.

Write or phone today for information and demonstration.

SPECIFICATIONS

Test ranges	
Beta	1-4, 3-12, 10-40, 30-120*
I_{co}:	0-50, 0-500 ua
Accuracy	
In circuit:	±20% for external loads over 500 ohms. Improved accuracy above 500 ohms, usable readings below 500 ohms.
Out of circuit:	±10%
Power:	Internal battery, mercury or zinc-carbon type, 600 hrs. av. life; output indicated on front-panel meter.
Operating Temperature:	32 to 149° F
Size:	9" high, 7⅝" wide, 6½" deep, weight, 10¼ lb., including batteries.
Price:	$335.00.

*Beta readings to 300 may be approximated.

Sierra **SIERRA ELECTRONIC CORPORATION**
A Division of Philco Corporation
6919Y BOHANNON DRIVE • DAvenport 6-2060 • MENLO PARK, CALIF., U.S.A.
Sales representatives in all principal areas.
Canada: Atlas Instrument Corporation, Ltd., Montreal, Ottawa, Toronto, Vancouver.
Export: Frazar & Hansen, Ltd., San Francisco.

6919

INDUSTRY VIEWS

These six men played major roles in the 1961 Convention of the Washington and Oregon Independent Telephone Associations several months ago: Above (l to r): HAROLD R. BOLLINGER, Waconia, Minn., and 2nd VP of USITA; NORMAN HOWERTON, Ilwaco, Wash., and president of the Washington Independent Telephone Association; C. H. McLEAN, president of the British Columbia Telephone Company; and JAMES DAMON, Mt. Vernon, Ore., and president of the Oregon Independent Telephone Association. Above center: Hon. FRANCIS PEARSON, chairman of the Washington Utilities and Transportation Commission, Olympia, Wash. Above right: JONEL HILL, public utility commissioner of Oregon, Salem, Ore. About 500 persons attended the convention.

When employes at General Telephone Co. of Ohio's general offices wonder whether an office rumor is true, they dial F-A-X and get the *right* word. Using a "tt" unit and a one-minute tape, AL KAUFFMAN (right) public relations administrative assistant, and SHARON KNEISLEY, marketing and sales secretary, team up to record the news that counts at General. Since its beginning in April, 1960, F-A-X has been dialed more than 32,000 times — more than 100 calls a day. Through availability of this device, rumors just don't get started at General.

The Missouri Telephone Association members conducted two fall district meetings several weeks ago. The first meeting, at top, in which 75 delegates took part, was held in Columbia, Mo. The second meeting, below, with an attendance of 118, was in Springfield, Mo. Main speakers were: Jack E. Bartruff, president of the association and of Meramec Tel. Co., St. James, Mo.; Lawrence J. Hogan, public relations expert from Washington, D.C.; James T. Blair, Jr., former governor of Missouri; William Barton, judge and member of NARUC Committee on Rates of Transportation Agencies; Warren Welliver, county political party committee chairman.

Send TE&M the pictures and the story of any happening in your company that you believe will be of interest to TE&M readers, and we will do the rest. Address all material to Editor, TE&M, 7720 Sheridan Rd., Chicago 26, Illinois.

W. G. WINTERS, president of Texas Tel. and Tel. Co., shovels first spadeful of dirt in ground-breaking ceremonies at Fairfield, Tex.

Speakers and Fairfield, Tex. officials at recent ground-breaking ceremonies were: (l to r) W. G. WINTERS, pres. of Texas Tel. and Tel. Co.; J. B. SWINK, general commercial and traffic manager of the company; TAS S. WATSON, JR., mayor of Fairfield; C. S. CHILDS JR., president of Fairfield Chamber of Commerce; B. F. CUMMINGS, district manager of company; Rev. DOWNEY MILLS of First Baptist Church; S. B. CARROLL, Freestone County judge; and L. J. DAVIS, master of ceremonies.

JUSTIN E. HOY (left) has been named vice president — public relations for Southwestern Bell Telephone Co. He succeeded HAROLD B. GROH (right) who resigned to join Ohio Bell Telephone Co. as vice president — operations. Max W. Newby, formerly Missouri-Illinois general staff manager for Southwestern Bell, replaced Hoy as commercial operations engineer. Stuart R. Trottmann, Jr., was appointed to Newby's former post. Trottmann was general advertising manager for the company.

Among 1961 USITA convention-goers were these recent graduates of the USITA Management Development Program at the University of Kansas, Lawrence, Kan.: (l. to r.) C. FREDERICK ROTH, American Tel. and Tel. Co., New York City; FRANCIS WELCH, Public Utility Fortnightly, Washington, D.C.; ALLEN LINDEKUGEL, Central Tel. Co., Fairmont, Minn.; DALLAS REID, Virginia Tel. and Tel. Co., Charlottesville, Va.; LEONARD NELSON, Central Tel. Co., Lincoln, Neb.; FRANK PINET, Associate Director, USITA Management Development Program, University of Kansas; KENNETH DALLY, Central Tel. Co., Lincoln, Neb.; WILSON GARNETT, Virginia Tel. and Tel. Co., Charlottesville, Va.; W. R. McGREW, Central Tel. Co., Hickory, N. C.; and ERNEST MENENDEZ, Southeastern Tel. Co., Tallahassee, Fla.

Two new sales representatives in the Midwest will handle services to local Independent telephone companies for Lindsay Telephone Supply Co., Northfield, Ohio. THOMAS A. MALTBY (left) with eight years of inside sales department experience, will cover Ohio and Michigan from Northfield. JOHN A. GEDDES (right) formerly with Sherron Metallic Corp., will represent the firm in Minnesota and Iowa. He will headquarter in Rochester, Minn. The company represents more than 100 telephone product manufacturers, including Anaconda Wire & Cable, Reliable Electric, Lorain Products, Ceeco, Cook Electric and Philco.

EDWARD J. BRACKEY, JR., (second from left), an executive of the Southern Bell Telephone & Telegraph Co., Jacksonville, Fla., and MRS. BRACKEY (third from left) are honored at ceremonies held at completion of six months duty by Mr. Brackey as assistant director for mobilization planning of the Communications Industries Div., Business and Defense Services Administration, U.S. Dept. of Commerce, in Washington, D.C. In completing his assignment with BDSA and returning to Southern Bell Tel. & Tel. Co., Brackey becomes a member of the National Defense Executive Reserve. In the ceremony THOMAS E. DRUMM, JR., (fourth from left) administrator of the BDSA, has presented a Certificate of Service and a commemorative flag to Brackey. Others here are: E. C. SCHAFFER, BDSA (left) and ALEXANDER J. FALK, director, Communications Industries Div. (far right).

Mostly About People You Know

R. D. Bonnar, Pres., Gen. Mgr. Geneva Telephone Co.

ROBERT D. BONNAR, former general manager and assistant secretary of The Ashtabula (Ohio) Telephone Company, is now president and general manager of The Geneva (Ohio) Telephone Company.

J. T. Jones who has served as president of The Geneva Telephone Company since the death of C. A. Beswick, in addition to being treasurer, was made chairman of the board. C. O. Peterson, acting general manager, was elected treasurer.

The Geneva company became an affiliate of Mid-Continent Telephone Corporation on June 8, 1961, while the Ashtabula company board of directors recently voted to accept Mid-Continent's offer for an exchange of stock.

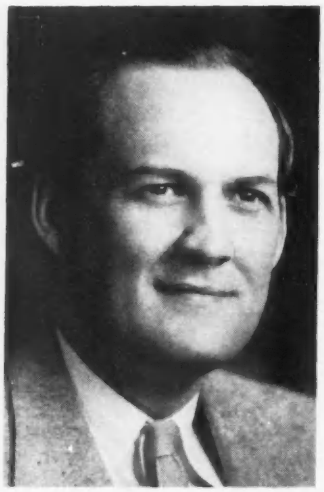
Howard M. Wright, president of The Ashtabula Telephone Company, also will work as general manager.

Robert A. Beswick has resigned as commercial manager of The Geneva Telephone Company. He has worked with the company since 1941. Positions include trouble clerk, inside telephone repairs, installer, trouble shooter, central office equipment maintenance, central office wire chief, assistant general manager and commercial manager.

Bonnar is a resident of Ashtabula. His father, J. D. Bonnar, chairman of the board of Ashtabula company, has been in the telephone industry for 60 years.

R. D. Bonnar entered the telephone field in 1942 after graduation from Oberlin College. His first assignment was in the central office Maintenance Department. He worked as bookkeeper, accountant, commercial manager, treasurer, assistant secretary and general manager.

He is a member of the Ohio Independent Telephone Association. He



R. D. BONNAR

is a past president of the Rotary Club, trustee of the Ashtabula Area Chamber of Commerce and a director of The Ashtabula Industrial Corporation.

Jones has been a director of the company for 23 years and a vice president and treasurer the greater part of that time, until he was named president after Beswick's death. He is president of the North Madison Banking Company.

Peterson has been with the Geneva company eight years, having entered the telephone field after serving 16 years in the Accounting Department of The Ashtabula Corrugated Box Company.

Southern Bell Tel. & Tel. Elects W. C. Bauer V.P.

THE SOUTHERN BELL Telephone and Telegraph Company has elected W. Cecil Bauer vice president of the company. He will direct operations in Tennessee.

Bauer served as general manager for Tennessee under the late Sam H. Youngblood, former vice president of the company, who died September 1. Bauer will continue as general manager for Tennessee.

Born in Baton Rouge, La., he later was graduated from Louisiana State University in 1937. He began his telephone career the same year. He held various Plant Department jobs in Mississippi until World War II, when he served in the Signal Corps.

During the late 1940's and the 1950's Bauer held positions in Atlanta, Ga.; Nashville, Tenn.; and with the American Telephone and Telegraph Company in New York. He became general manager for Tennessee in 1960.

Elderton Exchange Burns, Service Back in 24 Hours

KITTANNING Telephone Company lost its Elderton (Pa.) exchange in a flash fire on a recent Saturday morning. With a Stromberg-Carlson Compak I installed quickly by experts, telephone service was restored in 24 hours — and many of the Elderton subscribers hadn't even known their phones were dead.

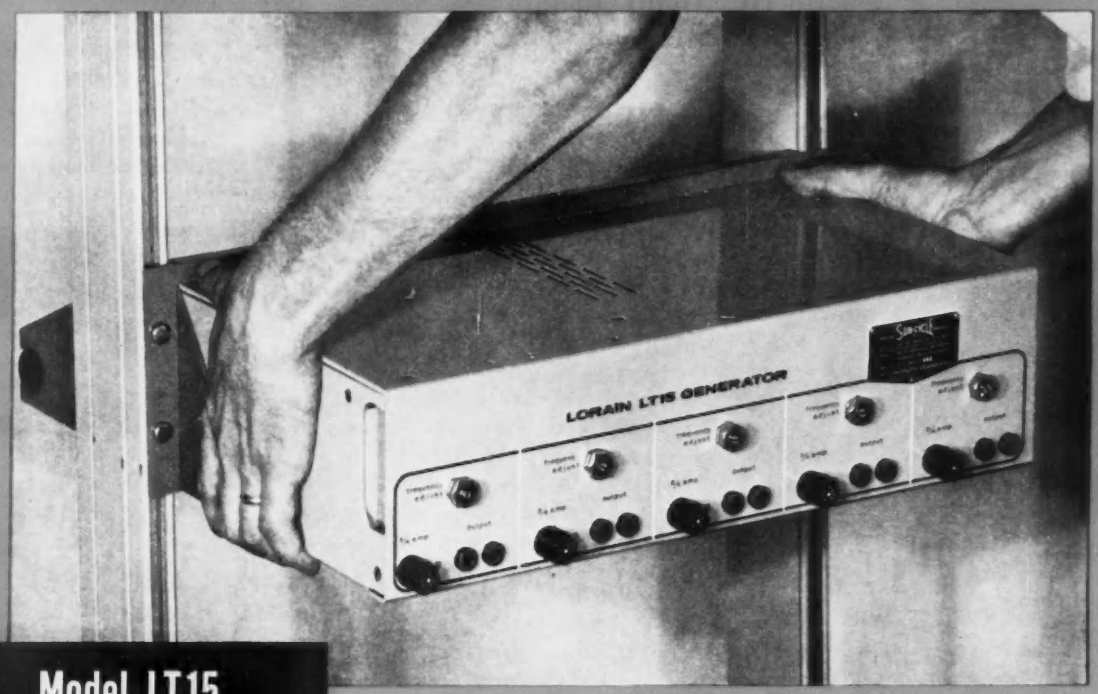
After the fire K. B. Schotte, general manager, reached Joe Ottala-

K. B. SCHOTTE

gana, Rochester branch manager of General Dynamics/Telecommunication, at 10 a.m. Wheels began to turn — fast!

Joe recommended the Compak I, the pre-packaged, ready-to-use 100-line CDO. A board was located, and the intended customer gladly gave up his priority to help the stricken Elderton exchange.

At 2 p.m. Schotte phoned in the circuit requirements. A small crew,



Model LT15 SUB-CYCLE Transistor 5-Frequency Ringing Generator

...NEW by LORAIN

Now, for the first time, a d-c operated, transistor ringing generator having the Lorain deluxe features and yet priced to fit the budget of the smallest exchange. The new LT15 SUB-CYCLE ringing generator, having an output of 15 watts, will handle up to about 2,000 lines. The units may be paralleled to accommodate expansion of facilities.

QUALITY FEATURES

Sine-Wave Output—Avoids cross-ring and assures quiet circuits.

Self-protected against overload, short circuit, trip battery short or cross connection of generators.

Precision frequency adjustment.

Modulated audible ring-back tone—Available separately or may be superimposed on the ringing voltage.

Essentially flat regulation from no load to full load.

ECONOMICAL

Low Initial Expense—Fast, easy installation and low capital investment.

Maintenance Free—Reliable transistor circuits—no moving parts.

Input—Low input current both at full load and at no load from 48 volt office battery.

COMPACT

Weight—Only 45 pounds.

Space—Occupies only 5¼" of vertical rack space in a 19" relay rack.

LORAIN *Products Corporation* LORAIN, OHIO

LORAIN PRODUCTS (CANADA) LTD.—ST. THOMAS, ONTARIO

DESIGNERS AND MANUFACTURERS
SUB-CYCLE® CONVERTERS FLOTROL® RECTIFIERS
PARTNERS IN DEPENDABILITY

"Mostly About People"

(Concluded from page 16)

collected hastily, began shop installation to these specs. The completed board cleared the back platform that evening.

At the same time Stromberg-Carlson Installer L. H. Schraeder, working 125 miles away, made a fast night ride over the Pennsylvania mountains to work with the Kittanning Tel. Co. crew to put the new board in operation.

R. L. Post New President Texas P.R. Association

R. L. POST, public relations director for the Southwestern States Telephone Company, has been elected president of the Texas Public Relations Association, an organization of men and women in public relations work at the executive level throughout the state. His election was announced at the association's recent annual convention in Fort Worth.

P. C. Bransby Dies, Gen. Supt. Columbia Tel. Co.

PAUL C. BRANSBY, general superintendent of The Columbia (Pa.) Telephone Co., died September 24. He was 57.

He had worked for the telephone company for the past 34 years, becoming general superintendent about six years ago. Formerly employed by the Bell Telephone Company, he came to the Columbia company as a cable splicer and later became wire chief. He also worked as plant manager before being named superintendent.

Mr. Bransby was a member of the Cable Committee of the United States Independent Telephone Association and was a member of the board of directors of the Independent Pioneer Telephone Association.

R. R. Hough Elected VP Of American Tel. & Tel. Co.

RICHARD R. HOUGH has been elected a vice president of American Telephone and Telegraph Company. He will be in charge of engineering.

Hough has been operating vice president of Ohio Bell Telephone Company for the past two years. A resident of Trenton, N.J., he joined Bell Telephone Laboratories in 1940 after receiving an electrical engineering degree from Princeton University.

During the next 17 years his work at the Laboratories centered chiefly on development of military weapon systems. In 1957 he was elected vice president of the Laboratories and later that year was transferred to AT&T, where he was named assistant chief engineer.

During his career at Bell Laboratories, Hough helped design and install the first U.S. naval gunfire control radar system and contributed to the development of army antiaircraft radar during World War II. Later he was in charge of systems engineering and development of military weapon systems, including guided missiles.

He served as consultant to the U.S. Defense Department, first as a member of the Radar Panel of the Research and Development Board and then as a member of the technical Advisory Panel on Electronics. Last March President Kennedy appointed him to head Project Beacon, a task force to study safe, efficient use of air space.

Hough is a trustee of Princeton University and chairman of the Advisory Council of Princeton's Department of Electrical Engineering. He is a senior member of the Institute of Radio Engineers, and a member of the American Institute of Electrical Engineers and the Princeton Engineering Association.

F. X. Welch Joins Faculty for '62 USITA Man. Dev. Prog.

PROFESSOR Francis X. Welch, authority on public utility law and rate regulation and editor of *Public Utilities Fortnightly*, will join the faculty for USITA's four-week 1962 Management Development Program next summer at the University of Kansas, Lawrence, Kan.

Prof. Welch succeeds Prof. A.J.G. Priest of the University of Virginia Law School. Prof. Priest has for the past four years planned and taught the rate regulation of this program.

Prof. Welch, a graduate of Georgetown University Law School, Washington, D.C., with BL, LLB, LLM degrees, is professor of public utility law at Georgetown University. Since 1957 he has been the secretary of the Section of Public Utility Law of the American Bar Association.

FRANCIS X. WELCH

In addition, he is the author of *Preparing for the Public Utility Rate Case* (1954), *Conduct of the Utility Rate Case* (1955), *Cases on Public Utility Regulation* (three editions), and *Cases and Text on Public Utility Regulation* (1961).

J. C. Boldt Ass't Sales Mgr. Com. Equip. & Eng. Co.

JOHN C. BOLDT, who recently joined Communication Equipment and Engineering Co., Chicago, as assistant sales manager, has had 15 years experience with manufacturers serving the Independent telephone industry. He has worked as a sales engineer for wire, carrier, multiplex and microwave transmissions.

BOLDT

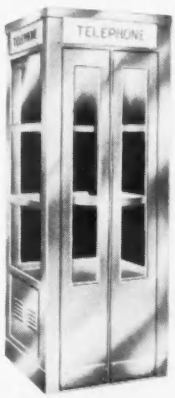
Boldt will manage office sales, customer service, quotations, special and new products promotion.

Real beauty doesn't need a paint job.

A naturally beautiful girl needs little or no make up. She can do without rouge. Needs no eye embellishments. She can even pass up lipstick.

In short, intrinsic beauty has no use for camouflage.

Take Sherron stainless steel booths, for example. They don't need paint, ever. There are no imperfections to cover up. No deterioration to fend off.



Sherron stainless steel booths start out shining bright. They stay that way. Their lustrous good looks last. That's the beauty of Sherron stainless steel booths.

SHERRON
METALLIC CORPORATION
1201 FLUSHING AVENUE
BROOKLYN 37, NEW YORK

THERE'S A SHERRON BOOTH FOR EVERY LOCATION AND BUDGET IN "GOLD," STAINLESS STEEL OR COLD ROLLED STEEL

Phelps Dodge has added Paper Insulated Stalpeth Sheathed Cable to its distinctive line of modern telephone wire and cable.

The same dependability of product found in every Phelps Dodge telephone wire and cable is built into Phelps Dodge Stalpeth. This service reliability is achieved by combining the finest quality materials with years of research and development in the manufacture of communications cables. The result? A complete control of quality

Latest addition to the extensive line of Phelps Dodge Telephone Wire and Cable

PHELPS DODGE STALPETH!

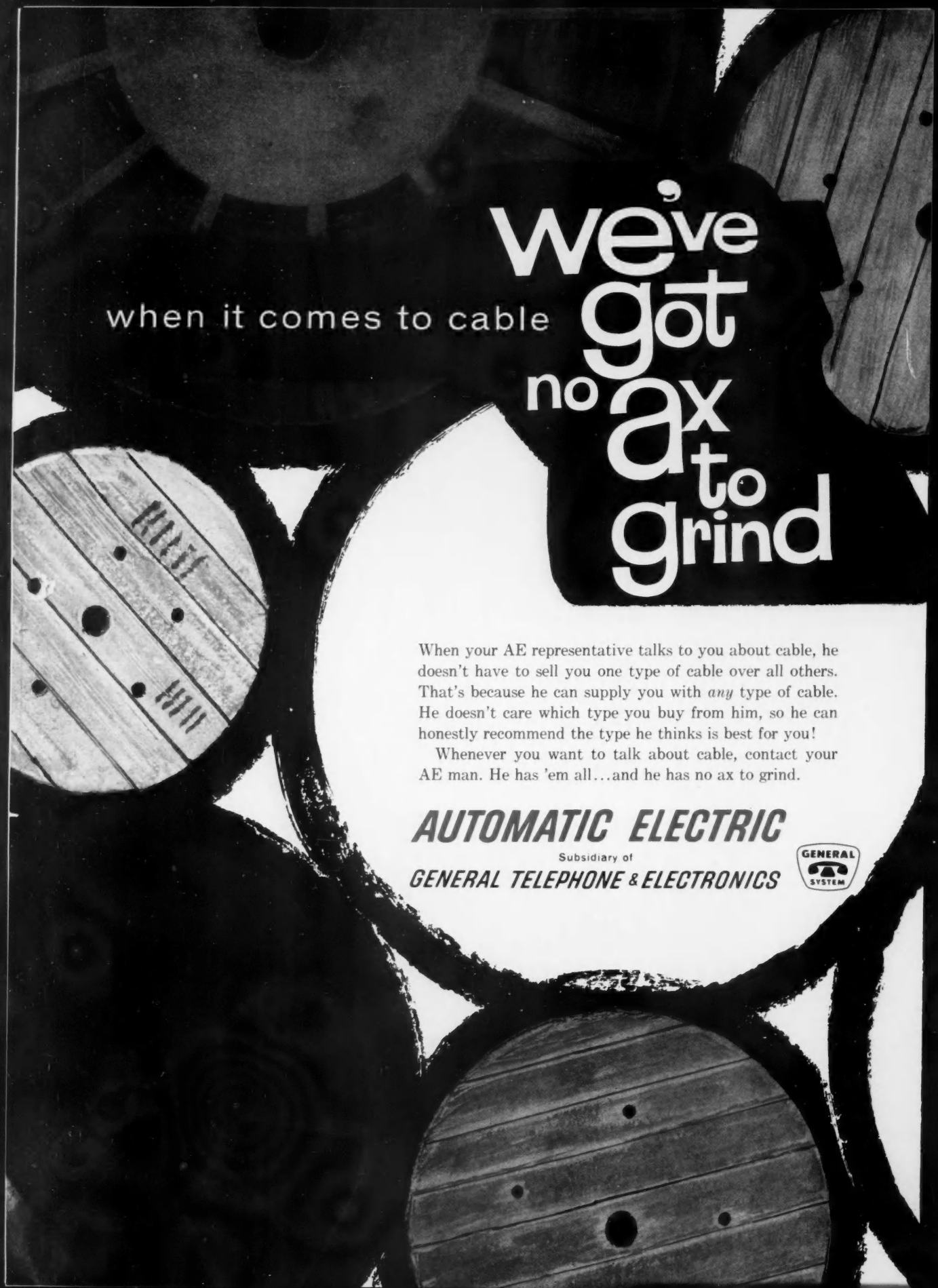
throughout fabrication that assures lower maintenance costs and helps extend service life.

Let Phelps Dodge show you the particular advantages of PD Paper Insulated Stalpeth Sheathed Cable for your requirements. Just call your nearest Phelps Dodge sales office.

PHELPS DODGE COPPER PRODUCTS
CORPORATION

SALES OFFICES: Atlanta, Birmingham, Ala., Cambridge, Mass., Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Denver, Des Moines, Detroit, Fort Wayne, Honolulu, Houston, Indianapolis, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N.Y., San Francisco, St. Louis, Seattle, Tampa, Washington, D. C.

P D MINE TO MARKET


when it comes to cable
we've got no ax to grind
When your AE representative talks to you about cable, he doesn't have to sell you one type of cable over all others. That's because he can supply you with *any* type of cable. He doesn't care which type you buy from him, so he can honestly recommend the type he thinks is best for you!
Whenever you want to talk about cable, contact your AE man. He has 'em all...and he has no ax to grind.
AUTOMATIC ELECTRIC
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS
GENERAL SYSTEM

SWITCHBOARD CABLE
PAPER INSULATED CABLE
LEAD SHEATH
ALUMINUM SHEATH
STALPETH
QUALPETH
FIGURE 8 QUALPETH
RURAL DISTRIBUTION WIRE
FIGURE 8 RURAL DISTRIBUTION WIRE
ARMORED UNDERGROUND DISTRIBUTION WIRE
VIDEO PAIR CABLE
LOW CAPACITY CABLE FOR CARRIER
SPECIAL CABLES

WAREHOUSES

Johnson City, N.Y.
158 Corliss Avenue
RA- 9-4996

Kansas City 8, Mo.
2021 Main Street
HArrison 1-7575

Northlake
Illinois
Fillmore 5-7111

Portland 10, Oregon
2360 N.W. Quimby St.
CApital 3-7244

Richmond 21, Virginia
2915 Moore Street
ELgin 8-9280

ITT KELLOGG
MAKES PABX SELLING A CINCH!
A great new ITT Kellogg product . . . backed by a complete sales plan makes it easier than ever to increase revenue through PABX sales

Sell the PABX system with all the features today's business subscriber wants (plus many features they *will* want after you tell them about 'em!) Features like revolutionary attendant's Push Button Dialing on attendant's cabinet! The easiest-to-operate, most versatile, modern looking attendant's cabinet you'll find! New, compact equipment case features modular design for easy expansion – up to 100 lines! Plus, all the standard and optional-extra features that businesses want most.

Sell the PABX that's easiest to maintain. Requires minimum maintenance because it's the same type, same high quality as ITT Kellogg crossbar central office equipment!

Sell the PABX with a planned promotion:

A complete ITT Kellogg SELL-A-PHONE PABX Promotion Kit includes everything you need to (1) get leads (2) analyze their requirements (3) present your PABX proposal and (4) draw up the contract! An easy-to-follow guide-book for selling PABX in your area, powerful selling aids, sample sales letters, survey forms, proposal forms . . . even a sample PABX contract!

Contact your ITT KELLOGG Representative, or the ITT KELLOGG Regional Office nearest you.

ITT **KELLOGG**

A Division of
International Telephone & Telegraph Corporation
6650 South Cicero Avenue, Chicago 38, Illinois

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IOWA: 1111 East River Drive, Davenport, Iowa, 324-0441.
KANSAS: 7th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
NEW YORK: 309 Wavel Street, East Syracuse, N. Y., HEmpstead 7-2511.
TEXAS: 1359 Motor St., Dallas 7, Texas, Riverside 7-5191.

ITT Kellogg products available in Canada
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☐ Please send me further details on your Crossbar PABX.

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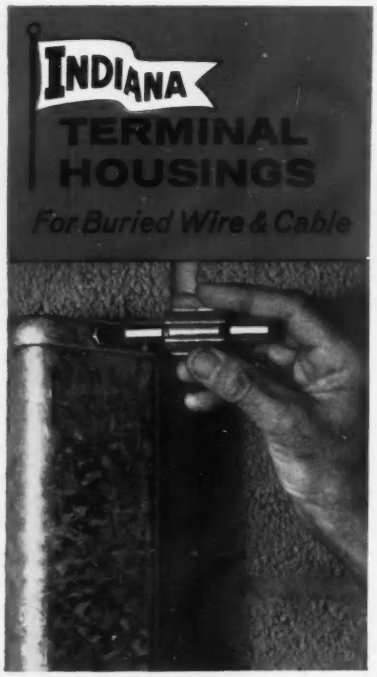


ENGINEERED TO SAVE YOU TIME AND LABOR

ONE screw like this is all that's required to complete the assembly of INDIANA Pedestal-Type Terminal Housings. This is typical of the time and labor-saving features to be found in these carefully engineered housings for buried wire and cable.

Made of heavy gauge steel and galvanized AFTER forming, INDIANA Terminal Housings provide long-lasting protection to terminal blocks, loading coils and/or splicer. Both pedestal and pole-mounted types, designed to accommodate from one to 400 pairs, are available.

Ask your distributor about these dependable, economical housings, or write for Bulletin No. TH-101R.

INDIANA
Steel & Wire Company, Inc.
Muncie, Indiana

INDUSTRY OBSERVATIONS

By L. A. GRITTEN

Those Russian Longhairs

IN THE CURRENT WAVE of pessimism, it may help us to seek relief in a speech made to the Edison Foundation a few months ago by Dr. John Turkevich, Higgins Professor of Chemistry at Princeton University. He should know his subject. He was on the Manhattan Project staff. He has been to the Soviet Union on special missions for the U.S. State Department. He speaks and writes Russian.

Dr. Turkevich says the United States is "superior to the Soviet Union in all major fields of science and technology save that of space." Citing names and achievements, he contends that "for every excellent Soviet scientist . . . we in the United States have 10 as good or better." He concedes that Russian space scientists are far ahead and must be granted "a glorious paragraph in the history of scientific achievements."

He blames U.S. industry for not doing its share in regard to basic research; and he feels that the greatest Soviet achievement has been the integration of science in the socialistic society. The challenge to this country that he fears most is "how to integrate modern science into our democratic capitalistic society."

In the Mail

PRESIDENT EARL BLOMEYER of Gladwin Plastics, Inc. writes in kindly disagreement with our pleas for bigger telephone booths. As he points out, the trend is all the other way. Certainly, the little "out in the open" miniature booths made by his company and others reduce theft, vandalism and insanitation difficulties.

Our own ideal booth would be not less than 5-ft. square, with a comfortable chair in which to lean back with a handset, and a table to write on and study the Yellow Pages. Any of the thousands of office-to-office, small-town-to-small-town salesmen will say "Amen" to that.

SUBMIT YOUR PROBLEMS
You are invited to tell TE&M's authors your problems of department policy or procedure on which you'd like to have an opinion. We'll do our best to help.

Oh, Doctor!

THE GIRL suffered pains here and there. After the usual poking and probing, the doctor said: "You have acute appendicitis." The girl raged: "Dammit, I came here for diagnosis not for compliments."

That old chestnut will soon be meaningless, as archaic as a reference to bloodletting for fevers, or leeches for headaches. In the future, they won't do it that way.

The patient will stand before a maze of Data-Phone equipment. Her reactions will be transmitted direct to the apparatus at a remote medical center. In a few seconds a distant specialist will send the diagnosis, and definite instructions for treatment, to the local physician.

Fantastic? Not to the Data-Phone wizards. Instant transmission of data, direct from the human body to distant recording instruments for study by consulting specialists, will be generally available in the near future. If you feel that such control of local medical practice is undesirable and unwarranted, read "Why Surgeons Operate," by Dr. Benge Atlee, a distinguished Canadian physician. (*Macleans*, 9-23-61). We quote: "Women

AN EXPANDING LINE OF WIRE TERMINALS and WIRE TERMINAL BLOCKS

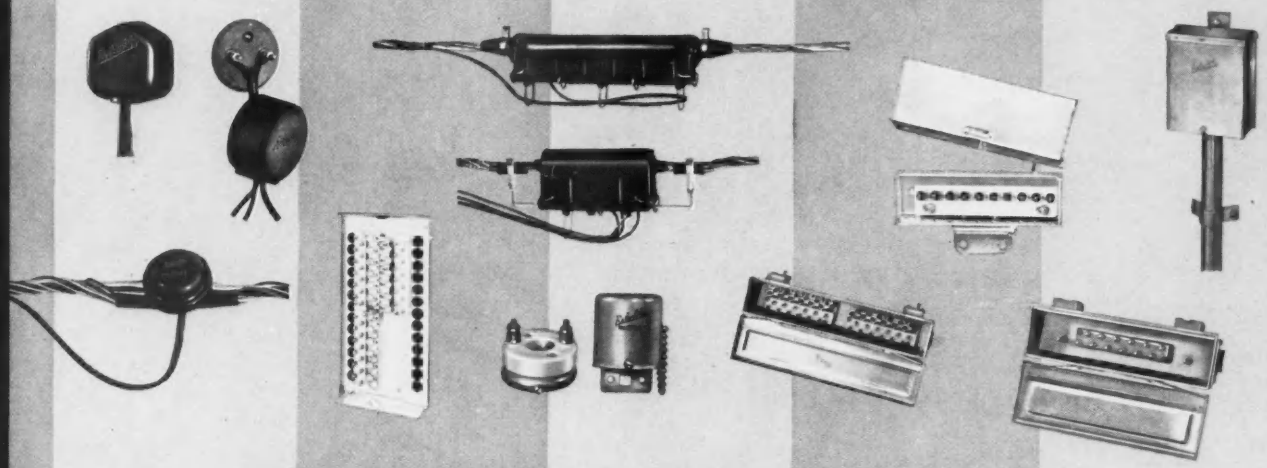
WIRE TERMINALS — Now in 31 catalog numbers

For use at junctions between multiple line wire and drop or bridle wire . . . in sizes 1, 2, 3, 5, 6, 11, 12, 16, 18 and 26 pair. All terminals are self-mounting or supplied with a mounting bracket.

PROTECTED • UNPROTECTED

Protected types use discharge washers or Reliable's Telegard Protector Units.

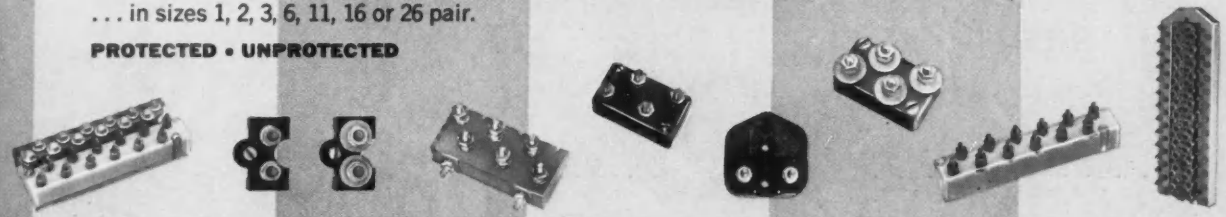
- For paper or plastic cable protection
- For station protection



WIRE TERMINAL BLOCKS — Now in 28 catalog numbers

For use in building boxes or buried cable housings . . . in sizes 1, 2, 3, 6, 11, 16 or 26 pair.

PROTECTED • UNPROTECTED



Do you have a particularly difficult installation problem? Our engineering department may be able to help you solve it.

THE TELEGARD UNIT

The Telegard Protector Unit is the heart of Reliable protected Wire Terminals and Wire Terminal Blocks. It is a completely self-contained, weatherproof screw-in unit with replaceable components.

Write for detailed engineering information on Wire Terminals or Wire Terminal Blocks.

Reliable ELECTRIC COMPANY • *Franklin Park, Illinois*

A Symbol of Integrity Since 1909

Some people don't know

A GOOD TRENCH

from a hole in the ground

Let's face it. Nobody buys a trencher. They buy mile after mile of trench! Your problem is to get your underground plant in as fast and efficiently as you can.

How to do it? Get the trencher that costs less to operate and maintain, avoids costly downtime, yet puts up to 800′ of clean, smooth trench behind it every hour! Get an Auburn Gear-Draulic Trencher. This rugged, one-man trencher penetrates fast, cuts from 6" to 14" wide, down to 6′ deep. Digging chain, with patented alloy steel cutting bits, prevents jamming or clogging, under wet or clay conditions. Gear-draulic drive automatically adjusts speed to changing soil conditions, serves as safety factor against hidden objects.

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Each Auburn model is specifically designed for the tractor or jeep on which it is to be installed. Models available for: INTERNATIONAL HARVESTER industrial tractors, FORD 4-speed transmission tractors, MASSEY-FERGUSON Work Bulls. Also available for WILLYS JEEP.

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are particularly vulnerable to the surgeon with the impatient ego and the itchy fingers . . . a deplorably large number of women are operated on in whom a normal looking appendix is found . . . If all the normal ovaries removed or tinkered with, since surgeons started to open the abdomen, were laid end to end, they would extend almost as far into space as Yuri Gagarin traveled."

Regional Yellow Listings

ONE SUNNY MORNING in the year 50,001 B.C. some paleolithic genius produced the first bow and arrow. When he proudly killed an unsuspecting bison, his next-cave neighbor said: "Huh, that's simple. Why didn't we do that before?"

That's how we felt about Michigan Bell Telephone Company's claim that in 1952 they were the first in the Bell System to publish Yellow Section listings arranged by districts. (In Detroit, for example, "Dressmakers" are listed under "Downtown," "Highland Park," "West," etc.)

It is so simple — and so desirable. Why didn't we do that before? And why do so many directories, Independent and Bell, still fail to give the customers the benefit of this temper-saving expedient?

Incidentally, if any Independent directory arranged its Yellow Section listings by districts, prior to the issue of Michigan Bell's 1952 Detroit directory, please tell us. We'd like to boast about it.

Prospects Galore, If . . . .

ACCORDING TO THE prophets, in the future every automobile, every airplane, every boat, even every adult human being in the world will be equipped with a dial radiotelephone, wherewith to order groceries, talk silliness about the weather or settle the fate of nations. In the factual meantime, our radiophone traffic is nothing much to boast about.

Federal Communication Commission figures for 1959 show Class A telephone companies reported aggregate gross revenues of $6,970,000 for all classes of "domestic public land mobile radio service." This was less than one-thousandth of their total operating revenues, of about $7,789,000,000.

In terms of traffic the disparity is greater. In 1959 these telephone companies reported more than 100 billion telephone calls. A total of 3,664,584,000 were toll calls. The balance were local. Only 4,637,685 calls were placed by radiophone, according to these companies.

There are well over 70 million registered automobiles in this country, but only about 18,000 of them have radiotelephones. In all of New York there are only about 700 customers for automobile telephone service, and they are, in effect, on 70-party lines; they share 10 channels. There is a waiting list in New York of 200 applicants.

Mr. Kappel in a recent interview said the Bell System aims "to serve at least a million automobiles with telephones in them that could talk through the nationwide network," and AT&T will be content to provide the connecting service and leave it to others to "manufacture the equipment, . . . install it, sell it and maintain it in the vehicle."

The A.T. & T. is prepared to spend $3 or $4 million dollars on research to produce more channels in the available bands.

It is a tremendous challenge, a multimillion customer harvest ripe for the reaper, if . . . if we can make available the frequencies and the equipment, if the price is right, if our salesmanship is aggressive.

Farewell to English

WELL, it seems like we ain't got zing enough to write any more today, so we'll shake it off before we goof.

You are disgusted with that remark? So are we — but we are informed that everything in that sentence will be classed as acceptable in the forthcoming *Webster's International Dictionary.*

The English language ain't what it used to be.

Washington OBSERVATIONS

By ROLAND DAVIES and FRED HENCK

Federal Communications Commission's latest step toward deciding the controversy over the A.T.&T. Co. Telpak service tariff came last month when FCC directed that a hearing and oral argument be held before the full commission on a "threshold question" raised principally by Motorola, Inc.

THE FEDERAL Communications Commission, which has had its share of criticism during the years on various subjects, appears to be losing one characteristic target of critical comment in the past.

Observers feel the FCC is so oriented to broadcasting and television that it devotes too little time and attention to non-broadcast issues. These affect at least as many Americans as radio-TV, and affects them much more directly in many instances.

In relatively recent months the commission has shown more signs of awareness of the importance of common carrier communications to the nation's welfare. Concentrated attention given space communications has been the first evidence of this shift in emphasis.

Now the FCC has taken the latest step toward deciding the controversy over the American Telephone & Telegraph Co. Telpak service tariff. The FCC has directed that a hearing and oral argument be held before the full commission on a *threshold question* raised principally by Motorola, Inc.

Hearings before the full commission are rare. That the entire body of FCC members is to hear the evidence is clear indication of the importance attached to the subject by the commission. While oral arguments are customarily held before the full commission, the FCC has tended — in connection with reorganization legislation passed by Congress this year at the urging of the commission — to hold such oral arguments only in more important situations.

The Telpak tariff has developed into at least a four-sided controversy. At one corner of the square is the Bell System, which emphasizes that a volume service such as Telpak is necessary to meet the competition of private microwave systems authorized by the FCC, and to fufill customers' requirements.

At another corner is a growing number of users — including the General Services Administration, Aeronautical Radio, Inc., the National Association of Manufacturers, and the American Trucking Associations — who support the tariff but have differences in agreement with the Bell System.

Then there are outright opponents of Telpak as it presently exists. These opponents include Motorola, Inc. and the Western Union Telegraph Co. Both organizations contend the Telpak rates are too low, and that other services of the telephone companies subsidize it. Western Union says it can't compete against the present rate schedule. Motorola is concerned about the effect on its sales of private microwave systems.

At the fourth corner is the FCC which already has affected the course of the service considerably. By ruling the service must be provided via single broadband channel assignments — in a form of *electronic highways* — the commission has limited availability of the service. This is pointed out by user organizations and the American Telephone & Telegraph Co.

New Or Separate Service?

THE FCC has raised questions about whether Telpak is a new or separate service, distinguishable from the regular private-line services rendered under the various individual tariffs. This led to a Motorola request that the case be divided into two parts. And it was in acting on this filing that the FCC set up the *en banc* hearing and oral argument to start November 13.

Evidence at the hearing will be received on: Whether Telpak services under the proposed tariff modifications "are distinguishable in any material respects" from those rendered under the individual private line tariffs; and "whether there are any material cost differences associated with furnishing a given number of channels to one customer, as opposed to furnishing the same number of channels to as many customers."

Immediately after the hearing, the FCC will hear oral argument on whether the Telpak tariff revisions violate section 202(a) of the Communications Act, which prohibits unreasonable or unlawful discrimination or preference.

Tariff revisions would permit telephone companies to furnish Telpak by any physical facilities available, regardless of whether they are single broadband channel assignments.

Tariff amendments are currently

under a 90-day suspension by the FCC until December 8 and may be put into effect by Bell System companies any time after this date.

The commission's relatively rapid disposition of the Motorola petition came after its consideration of competitive questions raised by Western Union. These questions were asked in a letter early in October from Western Union President Walter P. Marshall to FCC Chairman Newton N. Minow, and in a closed meeting last March between top Western Union officials and the commission.

After considering Western Union views and comments made by AT&T President E. J. McNeely at a special meeting, the commission issued its order setting up the Telpak hearing.

In taking the step toward a rapid ruling on the *threshold question*, the commission did not expect to affect the time schedule in its over-all investigation of the original Telpak tariff — in effect for several months — and the modifications.

Examiner David I. Kraushaar held a scheduled pre-hearing conference and decided on procedures for the over-all Telpak hearing. AT&T is to furnish to the other parties such parts of its direct case as written by December 4. The *live* hearing will begin December 11 for remaining AT&T oral direct testimony and the start of cross-examination by the FCC Common Carrier Bureau and parties opposing the tariff.

Ruling Won't Complete Case

THE COMMISSION'S ruling after the oral argument will not dispose of the entire case. Several alternatives were seen. The FCC might conclude the modifications violate section 202(a); in this case the investigation of the original tariff presumably would continue. The commission might hold they are lawful under the section; in this event the investigatory hearing on costs, rates, competitive aspects would go on. Or the FCC might decide it is unable to resolve the 202(a) question at this time.

Effects of the scheduled *en banc* hearing were not clear when the pre-hearing conference for the over-all investigation was held. Kraushaar asked if there were any possibility that AT&T would voluntarily extend the suspension of the tariff revisions beyond December 8. AT&T Attorney Ernest D. North said the company had seen no reason for taking such action, since it believes the tariff is "fully justifiable," that a longer suspension would not be in the interests of its customers.

North said his comment did not close the door to other action, in the light of the commission's order directing the hearing before the full FCC. Reasons could arise for extending the suspension in the light of the new development, he added.

Outside observers felt he might mean: If an FCC decision on the *threshold question* were believed imminent on December 8 but had not actually been issued, AT&T might not want to put the modifications in effect on the possibility they might soon be ordered cancelled by the commission.

In an exchange of letters between

Please turn to page 84

Daniel S. Seitz Dies

DANIEL S. SEITZ, 74, veteran Independent telephone man, author, and inventor of cable-fault locating devices, died October 29 at his daughter's home in Bellefonte, Pa., following a heart attack.

Daniel Seitz was a quiet, unassuming man who had won popularity with plant men throughout the telephone industry because of his valuable contributions to the technical phases of plant work, and his articles on approved maintenance practices, cable maintenance, and cable splicing. During his many years in the telephone field, he was responsible for many innovations in cable installation and maintenance practices.

DANIEL S. SEITZ

Mr. Seitz was born on a farm in York County, Pa., Feb. 21, 1887. He attended the local one-room country school for several years, then grade schools in Baltimore, Md., and York, Pa. Because of his family's financial circumstances, obtaining a high school education was impossible.

On Sept. 1, 1906, he entered the employ of the York (Pa.) Telephone Co. as a switchboard installer's helper. By 1908 he was switchboard maintenance man and had charge of the magneto central office. By this time the use of cable had become increasingly important, and Mr. Seitz transferred part of his activities to cable splicing and maintenance jobs. Finally this became his chief activity. His work included the planning, installation and maintenance of underground conduit, cables, and other outside plant, together with the maintenance of outlying central offices.

When he retired in 1957 he was cable superintendent of the York Tel. & Tel. Co. Following his retirement from the operating telephone field, he joined General Cable Corp. as a field engineer, a position he held until his death.

Mr. Seitz was a member of St. Matthew's Lutheran Church, York, Pa., and a member of the Masonic Blue Lodge and Consistory.

In 1908 Mr. Seitz married Eliza A. Bushey of York who died in 1958. They had one daughter, now Mrs. W. E. Dunnick, and two granddaughters, Barbara and Joanne, who survive.

Direct-buried, four-inch MARLEX conduit was used for primary circuits. Insert photo shows butt-fusion joining of conduit lengths prior to installation.

Over 93¢ per foot savings with MARLEX* conduit

Tough, lightweight, non-corroding conduit of MARLEX plastic proves economical...easy to install at shopping center in Casper, Wyoming.

At the new Sunrise Center, underground circuits for parking lot lighting, primary, and secondary distribution are carried in direct-buried MARLEX conduit varying in size from one to four inches. Mr. Emmett Ostlind (President of Ostlind Electric Company, the contractor on the job) is enthusiastic about the economy and ease of using MARLEX conduit. He reports: "In four-inch conduit we saved 93 cents per foot on material cost by using MARLEX instead of steel. MARLEX is also easier, faster and more economical to install . . . provides for easy cable pulling . . . and is completely compatible with standard conduit accessories and fixtures."

Rigid or flexible, large or small diameter—lightweight conduit made of MARLEX high density plastic is effortlessly handled without heavy equipment, economically shipped, and easily installed with butt-fusion joints, threaded or drive-on couplings. Ideal for both above-ground and direct-buried installations . . . MARLEX conduit resists acids, solvents, alkalies, bacteria, rot and corrosion . . . possesses excellent load bearing strength, high dielectric, and a wide usable temperature range. Its smooth inner surface also makes cable pulling easier and faster.

Conduit of MARLEX for this installation was supplied by Triangle Conduit and Cable Company, New Brunswick, New Jersey, through Graybar Electric Company, Denver, Colorado. Architect: Forrest Hamilton, Casper, Wyoming.

*MARLEX is a trademark for Phillips family of olefin polymers.

For more information, see your electrical supplier . . . or contact us.

PHILLIPS CHEMICAL COMPANY
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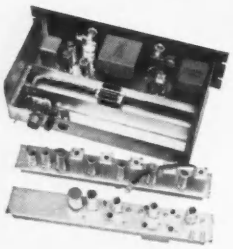
PHILLIPS 66 MARLEX PLASTICS

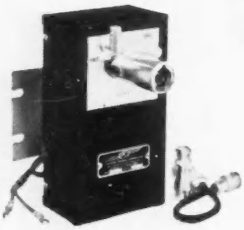
ERCO QUALITY RADIO COMMUNICATIONS EQUIPMENT



UNIVERSAL TYPE CERTIFIED COMMUNICATIONS RECEIVER

This "type-certified" unit features two rapid plug-in RF converter strips for operation in frequency range 108 to 152 mc or in UHF 225 to 400 mc. Excellent for ground-to-air communications.

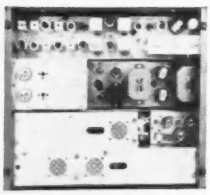
WRITE FOR TECHNICAL BULLETIN NO. 516-RV-RU



SELF-POWERED PREAMPLIFIER FOR UHF RECEIVERS

For use where additional sensitivity is required. Designed for use with Erco's 362-R UHF Receiver and others. Easy to install. Has overall gain of 12 decibels minimum and net gain of 8 decibels minimum. Dimensions 6½" x 3¾" x 4½".

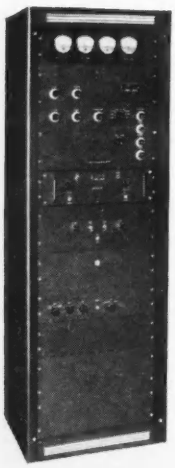
WRITE FOR TECHNICAL BULLETIN NO. 362-RPA



UHF TRANSMITTER-RECEIVER

Operates from standard AC power mains as a fixed low power radiotelephone for communicating with aircraft. Frequency range 225 to 400 mc with highly efficient transistorized power unit for both transmitting and receiving.

WRITE FOR TECHNICAL BULLETIN NO. 425-TRA



UHF TRANSMITTER FOR GROUND-TO-AIR COMMUNICATION

Designed for 225 to 400 mc range with sufficient panel space to accommodate UHF Receiver so as to form complete packaged station. Antenna switching relay is included so that one antenna may be used for transmitting and receiving. Transmitter carrier on-off functions are controlled by the microphone push-to-talk button. Remote control console for operating transmitter over telephone line up to 20 mile distance is available.

WRITE FOR TECHNICAL BULLETIN NO. 361-TB

ERCO RADIO LABORATORIES, INC.
GARDEN CITY, NEW YORK

PIONEERS IN RADIO COMMUNICATIONS • SYSTEMS • QUALITY EQUIPMENT

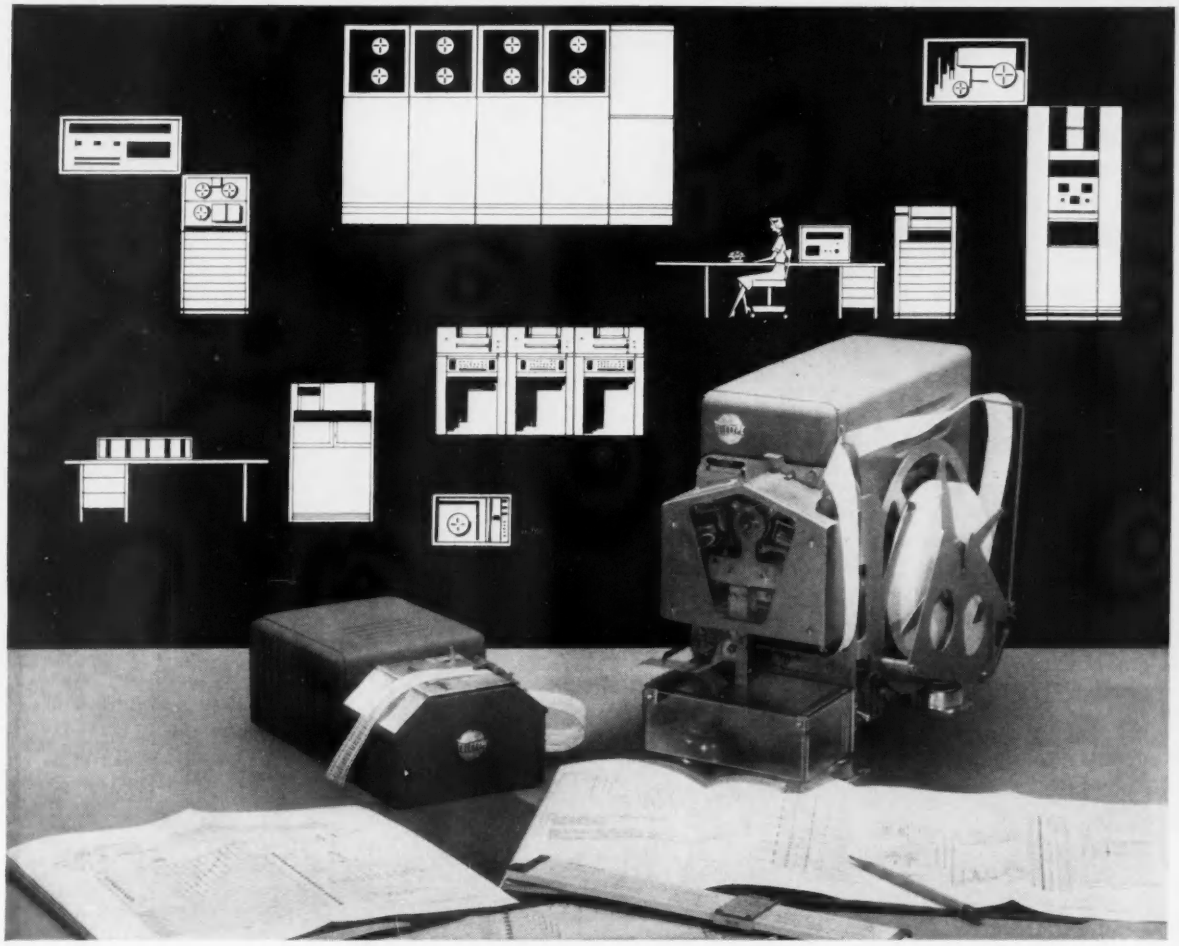
50 YEARS AGO IN T E & M

■ J. A. Lighthipe told the annual meeting of the American Institute of Electrical Engineers: *"When the Blake transmitter came out, it was the starting point of all our telephones. It was adjusted so beautifully you could stand off five or six inches from the transmitter, whereas before you had to talk up close.*

"The old Blake transmitter has probably done more good toward the universal adoption of the telephone system than any one thing!"

■ A biographical sketch on Frank B. Cook, founder of Cook Electric Co., said: – *"He was bent on following the pussyfooted wave currents that had been harnessed for speech transmission. He wanted to help it through brick walls and around cornices, and save it from being tangled up with the more boisterous currents, both natural and artificial . . . As a matter of fact, he wanted to be the day and night chaperone of telephone circuits which were then threatening to mix with a complicated mess of other rude and noisy ones . . ."*

■ The Telephone Pioneers of America met in Boston and completed plans for organizing. All persons who served for five consecutive years in telephone work prior to 1891 were entitled to become "full-fledged Pioneers." Alexander Graham Bell, Frederick P. Fish, and Thomas D. Lockwood were principal speakers. Officers elected were: President, Theodore N. Vail, Boston; Vice Presidents, Frank H. Bethell, New York City; W. T. Gentry, Atlanta; E. F. Field, Denver; and Secretary-Treasurer, Henry W. Pope, New York City.



New Teletype 1000-speed tape units

Here are two new units that offer the advantages of punched paper tape at 1000 words per minute—and combine traditional Teletype dependability with design simplicity and relatively low cost. Used together, the CX reader (left) and BRPE punch (right) are ideal for tape-to-tape communication of bulk message or statistical traffic via the new Data-Phone service. The reader and punch may also be used individually for communicating data to or from computers, and other devices associated with data processing, telemetering and similar communications functions.

These high-speed units operate on a parallel-wire signal path, in either transistorized or vacuum tube circuits. For serial transmission over conventional voice channels, signals can be converted by external facilities. A pulse generator, adjustable through a full 360 degrees, triggers the external signal storage and provides optimum synchronization of intelligence transfer.

Tape Reader—Will read chadless or fully perforated tape, in 11/16″, 7/8″ or 1″ tape widths. Includes a set of auxiliary timing contacts that operate simultaneously with the sensing pins and assure accurate synchronization with associated transmitting equipment. Dimensions: 5″ high, 6″ wide, 11″ deep. Models available for reading 5, 6, 7, or 8 level codes.

Tape Punch—Produces fully perforated tape. Equipped with "low tape" warning mechanism which can be wired to external alarms. Tape container designed for easy access. Dimensions: 12″ high, 8″ wide, 16½″ deep. Available in two models—one for punching standard 5-level communications code (11/16″ tape); the other adjustable for punching 6, 7 or 8 level codes (7/8″ or 1″ tape).

Teletype Corporation manufactures this equipment for the Bell System and others who require the utmost reliability from their data communications facilities. For free descriptive literature on the CX and BRPE units, write Teletype Corporation, Dept. 66L, 5555 Touhy Avenue, Skokie, Illinois.

TELETYPE®
CORPORATION • SUBSIDIARY OF *Western Electric Company* INC.

THE Boothette®*

Attract callers with Gladwin's well-signed and well-lighted BOOTHETTE (GP-2200).

Silk screened on the inside, the signing will last forever. Fluorescent lighting glows through the durable plastic dome to draw nighttime users—and to protect the phone from thieves and vandals. The dome can be white, blue or red with large contrasting red, blue or white letters, or special colors as required.

This installation will withstand all weather and temperature conditions. The clear acrylic plastic sides make both the phone and the directory easy to see.

The Gladwin BOOTHETTE can be installed on any size pole or on any type wall. Installation accessories are available from Gladwin.

Gladwin makes many other products for the telephone industry. Write for a free catalog.

*U. S. Patent No. 2,982,593.

GLADWIN PLASTICS, INC.
165 COURTLAND ST., N. E.
ATLANTA 3, GEORGIA - 525—5384
Area Code 404

• • • •

Choice Diet

"Big 'K' has called upon the Russian people to start eating horse meat. We are unable to come up with a comment on this development that doesn't sound like a horse laugh." *North Vernon (Ind.) Sun.*

First Things First?

"At the risk of being reactionary, redundant and redolent, we want to say we do not want to go to the moon. Why do we hunt for new problems, when we have solved so very few of our problems right here on earth?" — *Simsbury (Conn.) Farmington Valley Herald.*

Good Question

"If the world is getting smaller, why do they keep raising postal rates?" — *Bennettsville (S. C.) Herald-Advocate.*

It's a Fact

"Today, management and employes are two fingers on the same hand. Cut off the blood supply, which is profit, and they both are subject to economic gangrene" — *Winchendon, (Mass.) Courier.*

Alibi-Artist

"Our neighbor has a new wrinkle for getting out of work around the house. He tells his missus the union won't let him do it." — *Saugerties (N. Y.) Catskill Mountain Star.*

Sure to Reduce Traffic

"The National Safety Council might well take into consideration a statement made by Will Rogers. He suggested that highways be opened only to cars that that are paid for." — *East Grand Forks (Minn.) Record.*

known by the companies it keeps moving

Thousands of leading American companies keep their investment at a minimum with a 'Jeep' fleet. Great versatility and low initial cost give you the most versatile vehicle you can possibly get for your money! Traditionally rugged 'Jeep' construction keeps maintenance costs low and the resale value high. Get in touch with us today for complete 'Jeep' VEHICLES® information! **Write to: Robert J. Kreusser, Fleet Sales Manager, Willys Motors, Inc., Toledo 1, Ohio.**

'JEEP' FLEETS—FROM THE WORLD'S LARGEST LINE OF 4-WHEEL DRIVE VEHICLES

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1

Anaconda Quality — Anaconda Stalpeth is soundly engineered to provide practical economies based on Anaconda's intimate knowledge of the requirements of the Independent Telephone Industry. • Stalpeth paper-insulated cable is manufactured under precisely controlled conditions to assure uniform attenuation characteristics, reliabilty, and long life. Paper must pass rigid physical, chemical, and electrical specifications. The sheath—produced under license from Western Electric—is made of steel and aluminum, covered with the finest polyethylene. • Lightweight Stalpeth can be installed aerially in extended span lengths. Underground, it offers long, trouble-free service because it's tough and corrosion-resistant. • Anaconda Stalpeth is immediately available from completely stocked shipping points across the country. • Write today for technical brochure or applications assistance.

The experience and the services of Anaconda are always at the disposal of the Independent Telephone Industry. For technical assistance on any problems, or specifications on any Anaconda products, contact Anaconda Wire and Cable Company, 25 Broadway, New York 4, New York, Department EFL-2-TE & M.

less than both?

2

Anaconda Service — Anaconda's confidence in the Independent Telephone Industry is manifested by a unique combination of manufacturing competence, engineering and research experience, and technical assistance to better serve all segments of the industry. For example: **Application-Engineered Cable** offers the electrical requirements needed for actual use. Over-engineering costs money—under-engineering costs more! Anaconda offers the perfect balance: sound engineering based on practical economies. **Rigid Specifications.** Anaconda has developed these specifications to set up precise electrical and physical requirements for every type of cable. These specs cover the following cable types: PL, STAL, ALP, CUP, PCP, PCPG, composites, quads, and figure-8 self-supporting aerial cable and wire constructions. **Coordinated Engineering Activities.** Anaconda maintains a special staff of communications engineers. They draw on the entire company's advanced research and development facilities in their work for the Independent Telephone Industry. **Field Specialists.** Specially trained in communications, these Anaconda field specialists offer their assistance in helping solve customer problems. **Research and Development** — covering both wire and cable and new materials — is constantly under way at Anaconda to serve the dynamic Independent Telephone Industry. **Strategically located Shipping Points** across the country are completely stocked for immediate service on your orders. 61329

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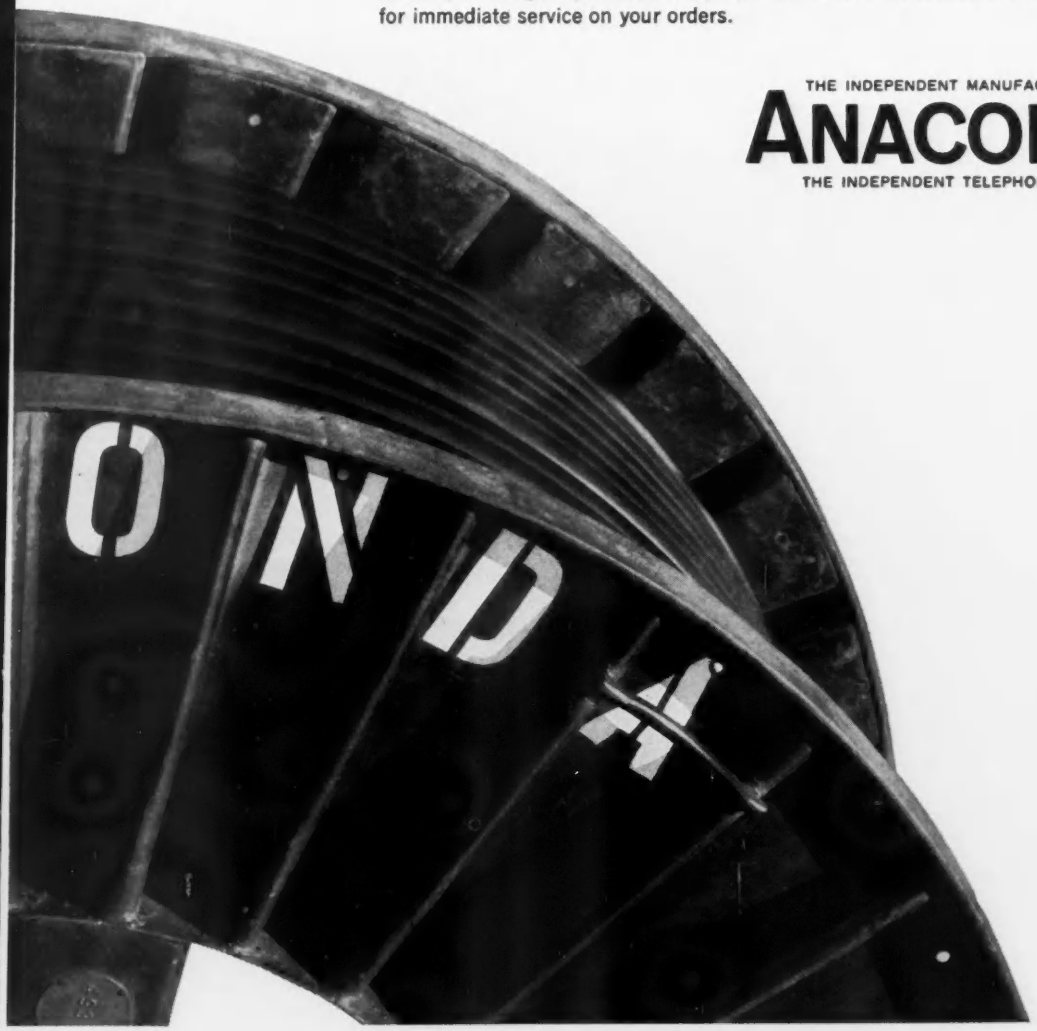

SEND YOUR PROBLEMS TO TE&M

A glance through the mail received daily at TE&M's office is enough to prove that readers all over the world bring their problems and questions to TE&M. And we're happy they do. Believing that the questions and problems presented by TE&M readers, and the answers prepared by TE&M's editors, will be of interest and value to all readers, we have developed this TE&M feature, and we hope you will use it whenever you need a fast correct answer to a question, or a solution to some operating problem. Send your questions to: *Editor, TE&M, 7720 Sheridan Rd., Chicago 26, Ill.*

QUESTION: — *What can be used to plug woodpecker holes in wood poles?*

ANSWER: — A filling compound for woodpecker holes is available. This compound reportedly is effective in permanently sealing holes. It's obtained in several parts, consisting of powdered asbestos, calcium chloride, and a special cement that mixes with water to make a paste. The hole is filled with the paste, using wire mesh or nails for reinforcement, if needed. It sets in 24 hours and doesn't shrink. The compound is known as "Flexifil."

QUESTION: — *What steps should be taken to locate trouble in a carrier system?*

ANSWER: — First, test the outside line and office circuits connected to the carrier, and check fuses and the power supply before trying to locate trouble in carrier equipment. The next step is to apply an audio tone to voice circuits of the carrier or an interrupter on the signal parts, using a receiver at the grid of each tube to check the tone going through voice and signal circuits.

In the high-frequency portion of the equipment, use a vacuum-tube voltmeter in place of the receiver to check across the grid of each tube. This is most easily done by taking out each tube in turn and connecting the test lead to the grid pin contact in the socket. When the tone or interrupter can't be detected at one of the tube sockets, the tube or its associated resistor and capacitor components are at fault.

"Some of these telephone boys make pretty good money!"

Check the tube and resistors and capacitors in that stage, and check voltages at the proper points indicated on the circuit print of the equipment. In the receiver portion of the carrier, the same tests will apply, except the signal is coming in from the line instead of going out on it.

QUESTION: — *In installation of mobile radio equipment, it has been suggested to use the same equipment to offer mobile service to the public as to communicate with our own trucks. Would this be a good idea?*

ANSWER: — We don't recommend simultaneous use of the same telephone company equipment for keeping in touch with company drivers and providing service to the public. Telephone companies have found that having utility users and private users on the systems at the same time results in disputes. Private users object to the presence of utility people on their line. This creates poor public relations. We recommend separate channels.

QUESTION: — *We've been having trouble with inaccurate readings on our panel and test meters. Something seems to affect the meter needle. We have good quality meters and are sure the meter movements are accurate.*

ANSWER: — Before you do anything to the meters, check and see if static electricity is causing the trouble. Many meters are now equipped with plastic faces and static charges may be accumulating on them, causing the meter needle to stick in a different position from that required to show the true reading.

You probably have seen the same effect in the case of cathode ray tubes that have the face covered by a plastic grid sheet. If you rub your finger across the plastic sheath, the cathode ray beam will be deflected where your finger rubs across the trace on the screen and will gradually return to normal when the charge leaks away. That's the static charge generated by rubbing on the plastic sheet.

An anti-static solution is available which can be sprayed on or applied with a cloth to the meter face. The spray will leave an invisible shield that drains away the static.

NEED HELP? ?

Who doesn't? ? Well, before the solution to a tough operating problem, or the answer to a question, has you talking to yourself, send the trouble-maker to TE&M. We'll do our best to come up with the right answer.

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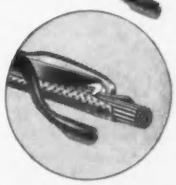
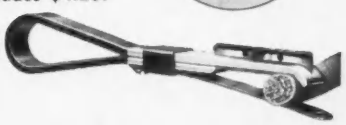
Just the tool needed for slitting most of the outdoor, heavy-duty types of cable coverings — large or small diameters.

Cuts into cable jacket at any point without previous notching. Size 6"x 1½". Price with 2 blades $4.20.



RING CUTTING CABLE TOOL



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A real handy tool for "ring" cutting the sheathing of INSIDE TYPE plastic, fabric, or rubber covered cable 3/16" to ½", or thin sheathed cable up to 1" diameter. Cut through cable sheathing *limited* to 1/32". Price $7.40.

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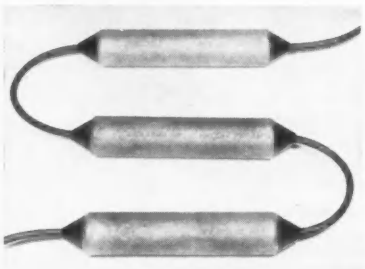
This is part of a DURCO Type G flexible anode assembly used in a distributed anode system as a means of accomplishing cathodic protection in congested areas.



Over the Counter and Listed Markets

Communications Securities

Markets as of Oct. 27, 1961	DIVIDEND	BID	ASKED	LAST SALE
American Tel & Tel. Co.	$3.60			120⅞
Anglo-Canadian Tel. Co. (Br. Col. Dom. Rep.)	1.20	40½	42	
Bell Tel. Co. of Canada	2.20			54⅛
British Columbia Tel. Co.	2.20	48½	49½	
California Interstate Tel. Co.	.70	25¼	26¼	
California Water & Tel. Co.	1.36	43	44	
California Pac. Util. Co.	.90	25¾	26¾	
Carolina Tel. & Tel. Co.	1.60	48½	—	
Central Tel. Co. (Minn., Iowa, N. C.)	.88	32¼	33¼	
Chenango & Unadilla Tel. Co. (NY)	1.20	28½	30½	
Cincinnati & Suburban Tel. Co.	4.50	106	108	
Citizens Util. Co. (Calif., Pa.) "A"	stk only	34½	35½	
Citizens Util. Co. (Calif. Pa.) "B"	.60	29	30	
Commonwealth Tel. Co. (Pa.)	1.00	26½	27½	
Florida Tel. Co.	1.00	29½	30½	
General Tel. & Electronics Corp.	.76			25
Hawaiian Tel. Co.	.54	22¾	23¼	
Independent Tel. Co.	none			13
Indiana Tel. Co.	none	38	—	
Inter-County Tel. & Tel. Co. (Fla.)	.76 + stk	28¼	29	
Inter-Mountain Tel. Co. (Va., Tenn.)	.80	20	21	
International Tel. & Tel. Corp.	1.00			51½
Jamestown Tel. Corp.	6.00	88	—	
LaCrosse Tel. Corp.	.80	16½	—	
Lincoln Tel. & Tel. Corp. (Neb.)	3.00	72	—	
Lorain Tel. Co. (Ohio)	1.40	40	—	
Middle States Tel. Co. (Ill.)	.92	31½	33½	
Mountain States Tel. & Tel. (Ariz., Colo., Mont., Tex.)	.90			32⅜
New England Tel. & Tel.	1.90			47⅜
North Carolint Tel. Co.	none	1¼	1½	
Northern Ohio Tel. Co.	1.60	52	54	
Pacific Tel. & Tel. Co.	1.14			37⅜
Peoples Tel. Corp. (Pa.)	.80	22	—	
Pioneer Tel. Co. (Minn.)	1.00 + stk	37½	—	
Rochester Tel. Corp. (N. Y.)	1.10			31½
Southeastern Tel. Co. (Fla.)	1.00	27½	29	
Southern New England Tel. Co.	2.20	53	55	
Southwestern States Tel. Co.	1.28	33¾	34¼	
Telephone Service Co. of Ohio "A"	.36	28	30	
Telephone Service Co. of Ohio "B"	.36	37	40	
Tidewater Tel. Co. (Va.)	1.40	27	—	
United Utilities, Inc.	.88	28⅜	29¼	
Virginia Tel. & Tel. Co.	.92	22	—	
West Coast Tel Co. (Wash., Ore., Calif.)	1.36	37½	39	
Western Carolina Tel. Co.	.40	12¼	13	
Western Power & Gas Co.	1.00	30¾	31¾	
Western Union Telegraph Co.	1.40			40⅞
Western Utilities Corp.	.40	25	15½	
Western Light & Tel. (Mo., Kan., Iowa)	1.20	35	36	

(Source of Market—Dean Witter & Co.)

Let's talk FACTS about transposition brackets!

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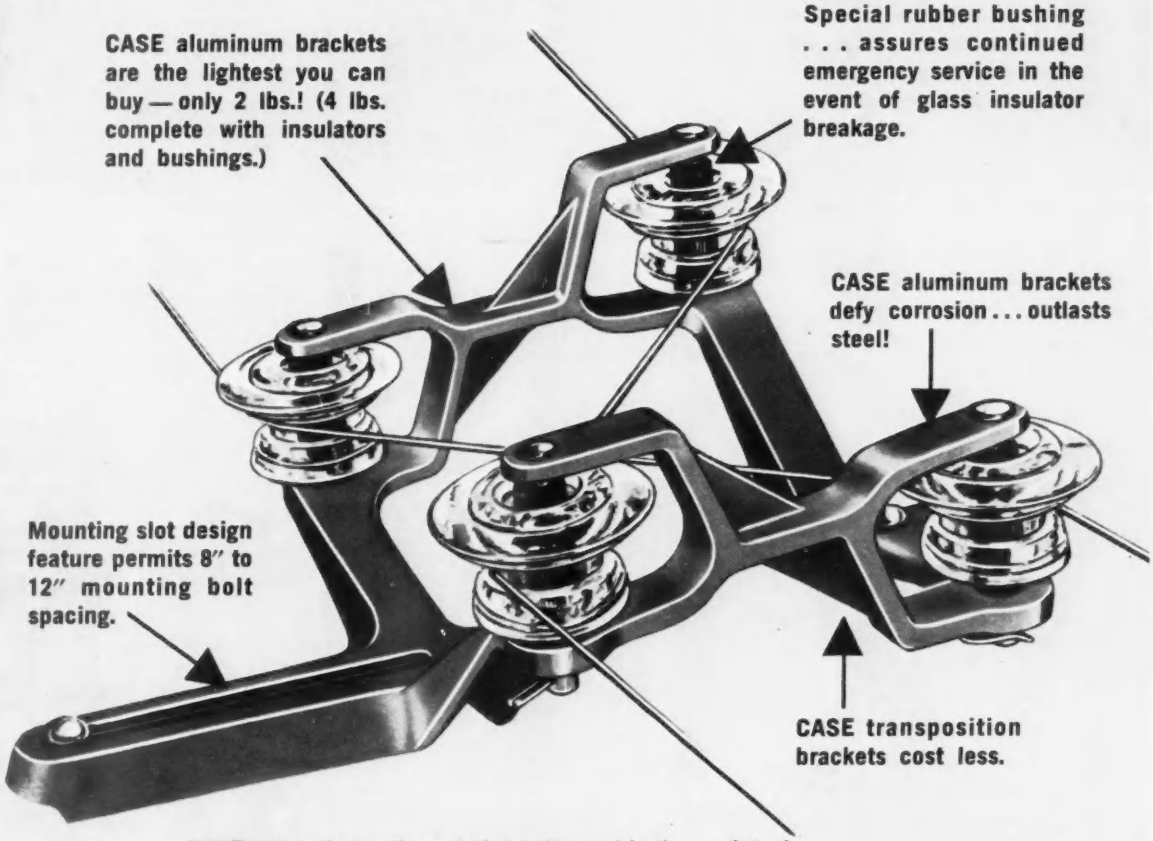
Special rubber bushing . . . assures continued emergency service in the event of glass insulator breakage.

CASE aluminum brackets defy corrosion . . . outlasts steel!

Mounting slot design feature permits 8″ to 12″ mounting bolt spacing.

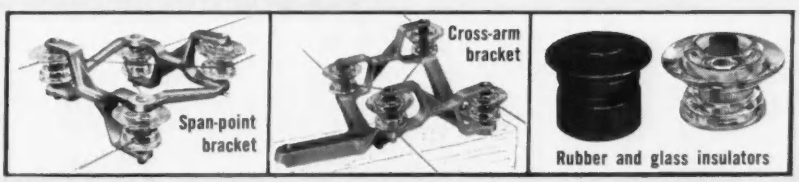
CASE transposition brackets cost less.



CASE offers immediate delivery from shipping points in California and New Jersey.

CASE SE-1648 right hand 8″ cross-arm bracket (as shown above) is mounted by means of two ½″ machine or carriage bolts (not included).

Call or write for complete details.



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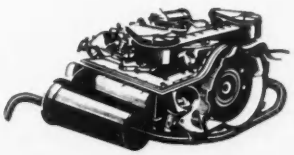
MORE WAYS TO MAKE MORE MILES (AND MONEY)!

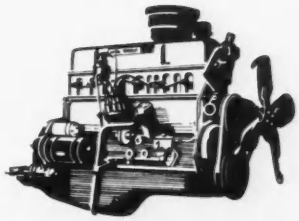
Matchless performers... matched to the job. That's what you'll find under the hoods of Chevrolet light-duty trucks for '62. More sure-saving power plants to choose from than ever before. New assurance of the *right* power for the job—power that does just what you want it to so that operating costs stay at a *low* low.

Standard in conventional models is the thrifty High Torque 235 Six, an engine that's powered more payloads than any other. *Then for heavier, harder working jobs that take more out of a truck, Chevy offers two great optional (extra-cost) engines for '62: the big High Torque 261 Six, available for the first time in this weight class, and the spunky High Torque 283 V8 with short-stroke design.*

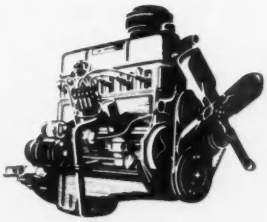
Add to this engine spread the space-saving High Torque 145 Six provided in Corvair 95 models and you've got a broad, all-purpose lineup that allows you to match the power to your type of work and nurse the last penny's worth of performance out of every operating dollar. Talk it over with your Chevrolet dealer soon. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



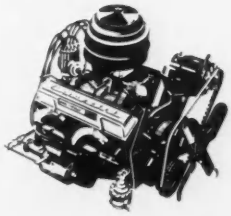
Compact High Torque 145 Six—air-cooled "pancake" design (only 17" high) saves space and minimizes weight by eliminating water jacketing, radiator, coolant and water pump. Gone for good are antifreeze and cooling system maintenance expenses. With fuel-saving valve-in-head design, the 145 Six develops 80 hp and 128 ft.-lbs. of torque—ample for brisk performance with big loads.



Rugged High Torque 261 Six—you get extra torque (235 ft.-lbs. of it) for extra tough pulls, *plus* proved 6-cylinder economy—available for the first time in Chevrolet light-duty trucks. Provides 150 hp and scores of reasons for efficient, cost-saving performance—forged steel crankshaft, high-alloy inlet valves, precision bearings, hard-faced exhaust valves with Rotocoils, to name just a few.



Popular High Torque 235 Six—the most widely used engine in the history of hauling with 235 cubic inches of lean-muscled efficiency. Standard in conventional models, the 235 Six delivers 135 hp and a load-moving 217 ft.-lbs. of torque. Premium-quality features such as forged steel crankshaft, aluminized exhaust valves, oil-bath air cleaner, and precision bearings add to engine durability.



Efficient High Torque 283 V8—made to order for runs that call for the extra punch of V8 power. Advanced short-stroke design knows how to nurse extra power and miles out of every drop of gas. 160 hp and 270 ft.-lbs. of torque get big loads moving quickly and efficiently. Top durability features include chrome-plated piston rings, Moraine 100 bearings and hydraulic valve lifters.

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Now, a completely portable precision test hybrid for transmission engineers and testers — ruggedly built, and packaged for maximum convenience and flexibility. Use Airtronics new Test Hybrid Set for cable and trunk acceptance tests, circuit evaluation, capacity balance tests, acceptance and evaluating tests using Singing Point or Return Loss techniques, plus other specialized applications. Use it, too, to locate — with *Airtronics unique new "Cable Locator"* — some of those "lost" cable pairs currently unavailable for use because of opens! This exciting innovation in telephone test equipment determines, with new accuracy, distance to an open end — by a capacity comparison method, with capacity measured to ±1%.

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EDITORIAL

"High Profits of The Telephone Business?"

■ THERE is, as most businessmen know, a considerable amount of loose talk about what many people consider to be high profits of business.

Unfortunately, many of today's critics of profits are failing to distinguish between profits in amounts of dollars, and profits in terms of percentages on investment, or on sales.

And we feel sure telephone people from coast-to-coast have met many outside-the-industry people who will argue that because the telephone business takes in a lot of dollars in the course of a year, its profits are high. We believe a few figures on that subject would be illuminating to any who think that way.

Here are some early-day profit facts about the Class A and Class B Independent telephone companies of the country. These are, of course, the larger Independent companies, all with average operating revenues of $50,000 or more per year.

In the year 1930 — the earliest year for which this data is available — the then Class A and B Independent companies earned for fixed charges, dividends and surplus about 5.8 percent on their investment in telephone plant, as such investment was shown by their books. (This was not a depression year for telephone companies; they did not begin to feel the effects of the depression until 1931.)

The year 1937 was a sort of average year after the great depression and before World War Two. In 1937 the then Class A and B Independent telephone companies earned about 5 percent on their book investment in telephone plant.

In the year 1947, the then Class A and B Independent telephone companies earned about 4.3 percent on their book investment in telephone plant. And that year, 1947, was a year in which the telephone plant was used as nearly to capacity as it has ever been used, with the consequence that the book investment per telephone in service was smaller than in preceding years.

At the close of 1960, the Class A, B, C, and D Independent telephone companies reporting to USITA showed that total plant investment of the reporting companies amounted to $3,539,128,000, $440,750,000 greater than the amount recorded at the close of 1959. However, the income available for dividends was $116,998,000 and this amount represented a return of only 3.3 percent upon a total undepreciated plant investment for A, B, C and D reporting companies of $3,539,128,000. For Class A companies, the ratio of return was 3.4 percent.

Rather than "high profits," the rate of return ratios pointed out in the above paragraphs for Independent companies are unrealistically low, particularly in these inflationary times, and in the light of competitive factors that always exist in a money market in which many interests are vying for the investor's dollar.

It seems to us that those who look at telephone industry figures and then holler "high profits" do not realize the very substantial importance which attaches to an adequate rate of return for a telephone company in these days of dynamic growth.

The facts are that: (1) under public regulation as it has existed, insufficient amounts have been earned to enable capital additions or improvements to be made out of earnings; (2) telephone companies, in common with other regulated business, are obliged to look to investors for funds for improvement and expansion; (3) in a highly competitive money market telephone companies because of low rates of return allowed by regulatory commissions have been at a disadvantage in relation to non-regulated business; and (4) more realistic consideration must be given by regulatory commissions and the public to the rate of return element if telephone companies are to be able to plan ahead and acquit their full service obligations to the public.

Somewhere along the line, if regulated utilities are to meet their public service responsibilities and continue to grow and satisfy demands for improved and expanded facilities, those who yell "high profits" before they study and understand an operating statement must be made to realize that realistic telephone company earnings must be permitted if investor capital is to be attracted in sufficient amounts.

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Spectacular advances in communications technology often overshadow the patient evolution through which a telephone system continually grows and develops. One little-heralded project, dialing over ocean cables, is a major step in that direction.

Overseas Dialing: A Step Toward Worldwide Communication

Over-all view of the Long Lines overseas switchboard room at the A.T. & T. Co. in New York, one of gateway cities.

By O. MYERS and C. A. DAHLBOM*

IN A TIME when the world seems to be getting smaller, the rapid transmission of information may be vital to the life of nations, businesses and individuals. In the last decade the phenomenal growth of communications has increased man's feeling of a shrinking world and at the same time it has offered him effective tools for coping with it. Telephony is usually in the vanguard of communications technology, so it is not surprising that in the last ten years the number of the world's telephones has practically doubled. On the continent of Asia it has, in fact, trebled.

The growth has profound implications for the development of long — and ever longer — distance telephone communication. And because more than 97 per cent of the world's telephones are either part of, or connect with, the Bell System Network, Bell Laboratories has a unique responsibility in the development of an integrated global network.

Many advances have been made. TASI, developed at the Laboratories (*Record,* March, 1958), is now in use on the two trans-Atlantic telephone cables and on the cable to Hawaii, and greatly augments their message-carrying capacity. Some advances of great promise — satellite communications, for example — are still in the experimental stage but are far more than merely visionary dreams. Yet others, such as operator-dialed overseas calls, the subject of this article, are in full development and will be realized in the near future. Also, many more ocean cables are planned to meet the anticipated demand for more international message circuits. If we can dial over these cables, their efficiency will be greatly increased.

At present, "ringdown" (manual) operation is used on cables between the United States and Europe. A New York operator, for example, rings a London operator and gives her the number being called. When the conversation is completed, New York again rings London and the connection is taken down. Plans are moving rapidly to have operators dial these calls to their destinations; these plans should be implemented in 1963. The next steps will be direct distance dialing to certain cities overseas and, finally, worldwide DDD. Meanwhile, operator dialing will allow connections to countries abroad to be set up faster and will increase the available circuit time.

It was no small task for telephone engineers and officials of the countries involved in the overseas dialing project to plan a worldwide program and to get it started. Some features of the various national telephone networks are reconciled without great difficulty, but there are others that one would like to wish away in the interests of a unified way of operating. The American and Canadian networks share a common numbering plan, an integrated trunking and switching plan and the same supervisory and digital signals. Thus the two countries may be thought of as the North American network. In Europe we have a different story.

Within the United Kingdom and the continent there are almost as many different ways to perform the switching, signaling and transmission jobs of telephonic com-

*O. Myers and C. A. Dahlbom are associated with Bell Telephone Laboratories, Inc., New York, N.Y.

munication as there are countries. Each national network may differ from any other. To translate between these various systems, another connecting network is required. For this international network, the Committee Consultatif Internationale Telegraphique et Telephonique (CCITT) has recommended standards of numbering, signaling, switching and transmission. The membership of the CCITT includes some 76 private operating agencies and national telephone administrations. The A.T.&T. Co. has been a member since 1929.

The European systems and the American systems have each reached highly sophisticated states of the telephone art independently, with no need until recently to coordinate their developments. This is particularly the case in signaling techniques, and it raises many complex problems of how to transmit information between the hemispheres. TASI, with its unique speech channel multiplexing, introduces other difficult problems. Add to these complications the fact that a compatible trans-Atlantic network will be part of a global network that will be converted ultimately to customer dialing and we have a rather formidable problem.

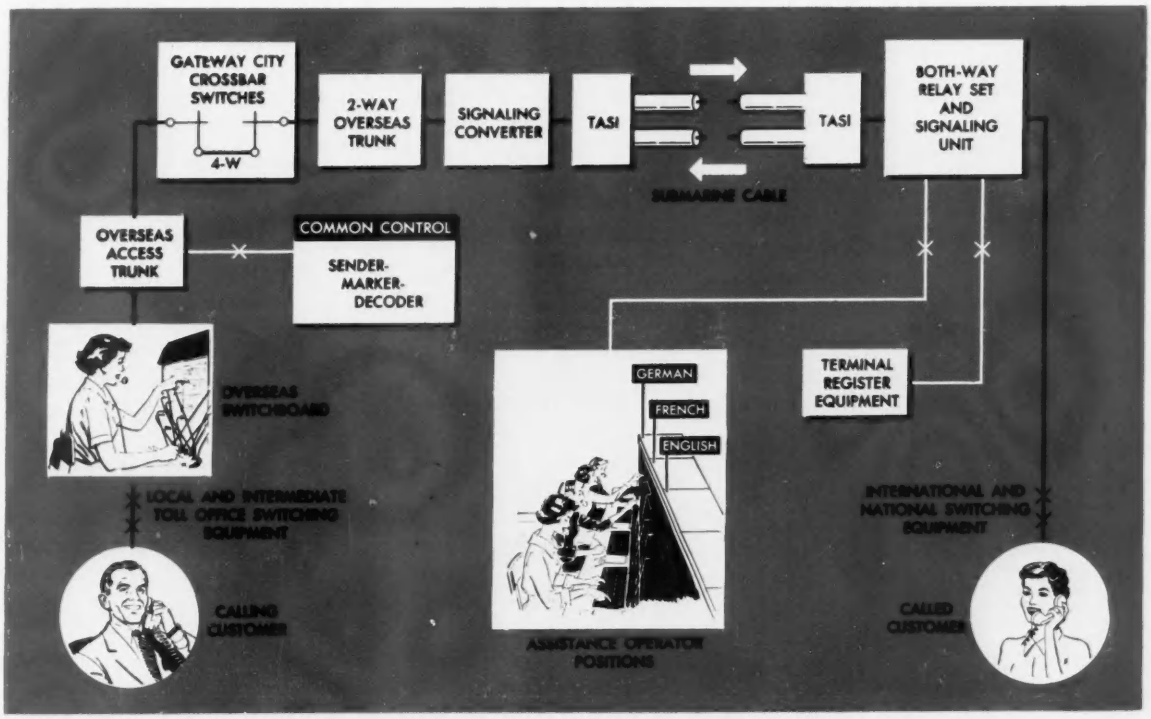
Happily — and this article could point a moral in international cooperation — telephone engineers and administration officials recognize the need for a world-wide dialing network. Some guide lines for its development have been delineated in the plans for dialing between North America and Europe. A few of the most pertinent agreements are listed below as a point of departure for a more detailed discussion of the particular problems.

- There will be a new supervisory signaling plan that will be the same in both directions in respect to format and frequencies.
- Address information will be sent by multifrequency pulsing at 10 digits per second.
- All cable circuits will handle two-way traffic (traffic originating at either end).
- Only machine access will be allowed to trans-Atlantic channels.

DIGITS DIALED	SWITCHING INFORMATION
44	Country code, United Kingdom
2	Language digit
1	Area code, London
222	Office code
1234	Line number

In the proposed trans-Atlantic network, the numbering plan used in Europe will meet CCITT recommendations; North America will use the standard North American plan. Each country will maintain the internal features it likes. For European international calls, the CCITT numbering plan uses a two-digit country code, a language digit, an area code which may be a single digit, an office code and a line number. On a call to London from any other country in Europe, for example, the dialing might proceed as shown in the table above.

The language digit, the second entry in the table,



General plan of the international network. Language operators will be needed only in Europe.

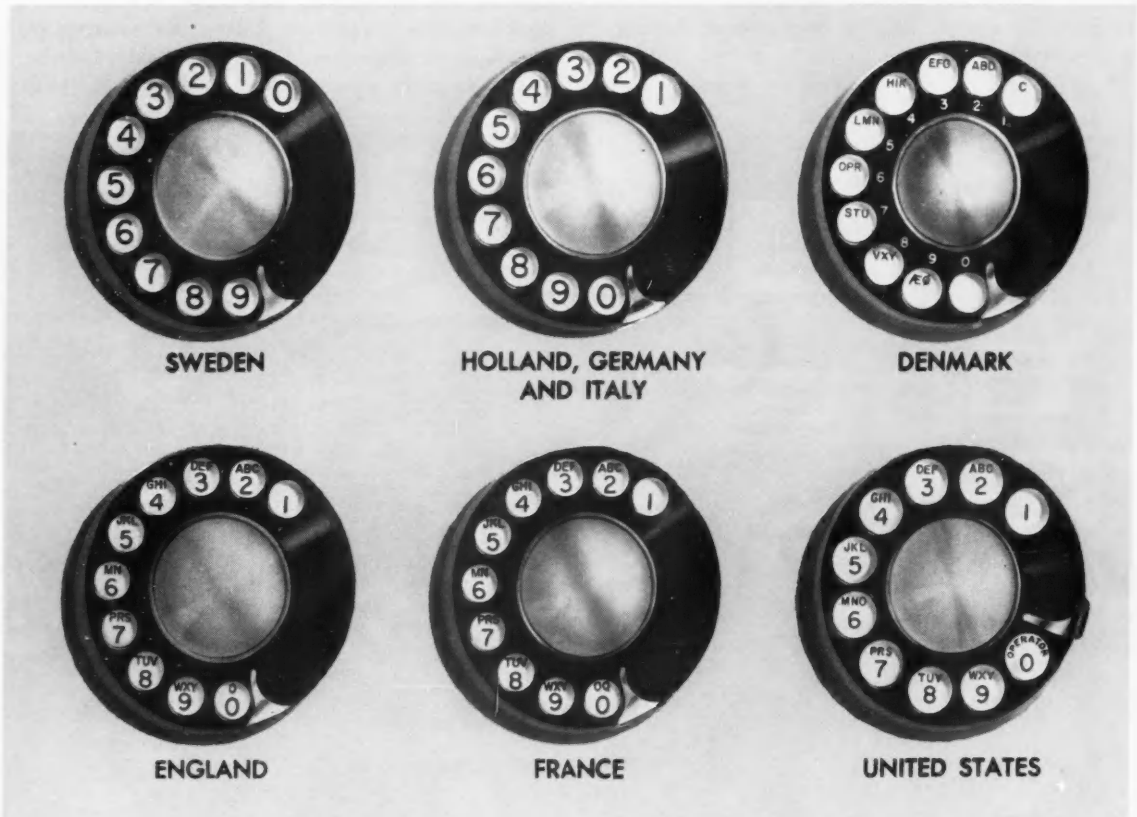
denotes the language of the calling country. This is to ensure that calls requiring operator assistance in the called country will be directed to an operator who speaks the language of the calling country. The office code will not necessarily contain three digits.

The arrangements will not be quite the same in both directions on the trans-Atlantic circuits. Mainly because of differences in numbering and switching philosophy, some aspects of dialing from North America to Europe will vary from dialing in the other direction. The major difference is the "gateway city" concept of the United States and Canada. With this mode of operation, calls to Europe from any point of origin in either country will be routed through a gateway city — New York and Montreal are typical — and dialed from these points. This is a very manageable concept because special equipment for overseas dialing need be installed only in the gateway cities. Similarly, special operating requirements are limited to staffs in these cities.

The European plan, on the other hand, prefers two types of operation called "terminal" and "transit," depending on whether the call is routed directly to the terminating country or switched through another country. If the call is terminal, the complete national number is sent ahead. If the call is transit, only the country code is sent to the transit points. The terminal country, when it is reached, requests the language digit and national number. Although this type of operation has the gateway-city advantages of limiting the requisite special equipment and operating procedures, it has the present disadvantage that all calls using the same country code must be routed via a single city. Thus, even though a short, direct route may exist between two cities, a call between them may have to be directed over a longer route through that single city. The alternative to this plan is the use of extra codes or more complicated translation.

Ultimately, transit operation may be needed for international alternate routing. In preparation for this, the North American gateway city equipment will be designed to send both terminal and transit signals. On calls from Europe to North America, no distinction need be made, because on this continent the same mode of operation serves all calls. In every case the complete address information is sent and received and the same group of registers is used for "via" and "terminal" traffic. The CCITT recommends two kinds of registers at each switch point, a two-digit register for transit calls and (usually) a ten-digit register for terminal calls. The language digit is stored in the trunk circuit, not in the register.

The language digit represents a small problem, though a practical rather than a technical one. On calls from North America to Europe the language digit must be sent and it will be inserted by switching equipment. On calls in the other direction, however, it is not practical



Telephone dials from several countries showing some of the variations in lettering and numbering.

COMPARISON OF TRUNK CONTROL AND STATUS SIGNALS

Signals	Standard Bell System SF Signaling for Intertoll Trunks (2-way Operation) Frequency = 2600 CPS		Signaling for Transoceanic TASI Derived Trunks (2-way Operation) Frequencies 2600 CPS / 2400 CPS	
	Direction of Transmission		Direction of Transmission	
	Orig-Term	Term-Orig	Orig-Term	Term-Orig
Idle Condition	→	→	No Tone	No Tone
Seizure	No Tone	→	➡	No Tone
Delay Dial	No Tone	No Tone	—	—
Proceed To Send (Start Dial)	No Tone	→	➡	→
Address Signals	MFKP	→	MFKP	No Tone
Customer Answer	No Tone	No Tone	No Tone	➡ 850
Called Customer Hang-Up (On Hook, Clear Back)	No Tone	→	No Tone	850
Disconnect-Forward (Clear-Forward)	→	→	→ / ➡	No Tone
Disconnect-Acknowledge (Release Guard)	—	—	→ / ➡	→ / ➡
Ring Forward (Forward Transfer)	70-130	No Tone	850	No Tone
Busy-Reorder-No Circuit (Busy Flash)	No Tone	Audible Tone (30, 60, 120 IPM)	No Tone	*Audible Tone (30, 60, 120 IPM)

→ Continuous Tone

Duration of Pulses Indicated in Milliseconds

*For Calls to United Kingdom & Europe, a Busy Flash Signal 850 or an Audible Tone

Trunk control and status signals as they are used on present Bell System and on transoceanic trunks.

to have assistance operators in the United States who speak the languages of Europe. Therefore, by agreement, all calls to the United States will be handled by European operators who speak English.

There are other numbering problems besides those discussed. One becomes immediately apparent with a glance at the dials used around the world (*See photograph on page* 48). On the Swedish dial, for example, the numeral "0" is in the position of the numeral "1" on the other dials. Mechanical translation may be necessary to reconcile this dial with others. The differences between the English dial and the American dial are slight and operators could be trained to make the necessary translations between England and North America. But for customer dialing, the problem may be somewhat greater. When customer dialing is eventually introduced, all-number calling will probably be adopted.

Difference In Numbering Plans

ANOTHER problem arising from the difference in numbering plans has the same general outline — a minor difficulty if operators dial, but more serious if customers dial. This problem stems from the idea of a "closed" or an "open" numbering plan and the methods of determining that full address information has been received.

In the North American (closed) numbering plan,

Next page please

senders and registers "count" the digits that are dialed and "know" when the last one has been received. This arrangement can be made because there are a fixed number of digits for each telephone number. In some European (open) plans the number of digits varies. Eight to ten digits not including the prefix "0" are used in England, for example. Timing or special translation is used to indicate that the last digit has been received. In London, the area code, "1," indicates that nine digits (prefix "0" followed by eight digits) will be dialed. In other areas the number is considered complete if, after a fixed time, no further digit is received. When operators dial, an end-of-keying signal will be transmitted to indicate that the number is complete.

Another problem is that differences must be reconciled in modes of assistance operator and address signaling. The CCITT proposes either an arythmic or a binary code. Each code has 16 possible signal combinations; ten represent decimal digits, the eleventh and twelfth signal "Code 11" and "Code 12" operators for assistance. These last combinations correspond, respectively, to the North American 3-digit inward operator code "121" and the 4-digit delayed call operator code "115X." Three of the remaining four combinations in the CCITT code are spares; the other indicates end of pulsing.

For supervisory signaling the problem is a bit more complex. The CCITT recommends "spurt-type" signaling in which there are tones on the line only when trunk control, status, or address information is transmitted. When the line is idle or during conversation, no tones are present. The North American network, on the other hand, uses continuous supervisory signaling in which there is a low-level tone always present on the line when it is idle. Interruptions of this tone transmit the signaling sequences. When signaling is completed and conversation has started, the tone is removed.

Another point of comparison is that the various line sequences — connect, disconnect, on-hook, off-hook — are represented in the CCITT plan by spurt signals of fixed duration and a specified combination of frequencies. To assure a high degree of accuracy, acknowledgment signals are needed. They are not needed with continuous signaling.

The supervision problem is further complicated by TASI. Continuous tone cannot be used on this system because its central idea is that the absence of any tones or speech energy on a channel indicates that it can be switched instantly to another talker. The signaling plan proposed for the trans-Atlantic facilities is, therefore, a compromise between spurt and continuous signaling; each type is used where it is most advantageous. The chart on the opposite page compares the types of signals used for TASI derived trunks with those of standard North American plan.

It is important to remember that the trans-Atlantic network will be compatible with both the European and the North American network, and that all countries will retain their internal features. Thus, in the matter of signaling, a converter will be used on TASI and convert it to the type of signaling used either in North America or Europe.

SUBMIT YOUR PROBLEMS

You are invited . . . to tell TE&M authors your problems of department policy or procedure on which you'd like to have an opinion.

While we don't claim to have all the answers, we'll welcome the opportunity to discuss as many as possible in our columns.

On the matter of trunks, CCITT operation in Europe is generally limited to one-way trunks. On the trans-Atlantic circuits, trunks will be designed to handle calls originating at either end. The economies of two-way trunking are important, and for Europe, this type of operation will eventually become standard where it is economical.

Economy — at least in the narrow sense of the word — is, of course, not the only object of the decision to use two-way trunks. Nor, indeed, is it the aim of any other change or development described in this article. That aim is faster, more efficient handling of international traffic. Paradoxically, one result of improved methods of transmission is that they usually perpetuate and even increase an aspect of the traffic problem that they were intended to solve — its volume.

It is almost a truism that message circuits added to a crowded route will stimulate even greater volumes of traffic than had existed previously. Traffic doubled in the year following the cut-over of the first trans-Atlantic cable to England. Conversation time per call also increased. An increase in traffic has occurred with each new cable and it can be predicted for planned cables. So the future of telephony is one of continued growth; its form is anybody's guess.

There are clear indications, however, that temper the guess with fact. It is quite likely that in the future, satellites will be used for intercontinental calls. Cables will, of course, be used for diversity and for protection against interference. In fact, some cable operating and signaling methods may be adapted to satellite operation. Worldwide calling with satellites will require a complete reappraisal of existing numbering, trunking, signaling, transmission and switching plans. Indeed, so great is the promise of satellites that work has already been started on worldwide numbering. Transmission, signaling, and trunking will be studied too. Intercontinental centers will probably perform the functions on a worldwide basis that regional centers now perform on a national basis. The horizons of technology broaden with new possibilities, and the physical horizons seem to grow closer as this technology brings nations to only seconds apart.

We are often told that the only real barrier between nations is their inability to understand one another. Understanding waits on a transfer of intelligence one to the other and the basis of this is a transfer of information. In a very real sense, the ultimate refinement in communications is not merely of the future, but will help to shape it. — *Reprinted from the "Bell Laboratories Record."*

THE NEW LOOK IN REA LOAN POLICIES?

Does the nation really have a new REA loan policy for rural telephone service or does it "have the same original basic policy, dyed a different color . . . to fit in better with the prevailing political climate in Washington?"

By FRANCIS X. WELCH
Editor, Public Utilities Fortnightly

I PURPOSELY PUT a question mark behind the title of my comments, because frankly I am not sure whether we really have today actually a new REA loan policy for rural telephone service or whether we have the same original basic policy, dyed a different color and brushed and polished up to fit in better with the prevailing political climate in Washington.

Whatever the true situation may be, I think the present REA rural phone loan program poses a challenge for the telephone industry.

Now there is a good safe word — "challenge!" But lest you be too impressed by it, let me remind you of a little trade secret. Whenever we lawyers come across something puzzling, and we are not sure what it is, or maybe even what it is all about, we call it a "challenge." It sounds important anyway.

Let me explain that, as a Washington observer, I have been looking at the REA for more than a quarter of a century. Yet, I cannot make up my mind exactly what it is trying to do, what it is supposed to do, or whether in the absence of such basic standards it is doing it well or not.

It started out in 1935 as an emergency relief measure. Then there was a short period of overtures for co-operation with the private electric utilities. Then a pattern of electric loans almost exclusively with co-operatives was set up.

Policy Swings to Private Companies

WITH THE TELEPHONE loan amendment in 1949, the policy swung back to private companies, so that now more than twice as many (543) loans have been made to commercial companies than to co-operatives.

As far as bringing service to the farmer, REA has chalked up a clear-cut record of success. Since it was established in 1935, the number of farms with electricity has risen from less than 12 per cent to more than 97 per cent. So you might say that part of the job is practically finished.

Since REA was given the authority in 1949 to make rural telephone loans, the number of farms with telephones has risen from less than 40 per cent to more than 65 per cent. And if we project the present rate of new farm connections against the declining number of farms, we might roughly estimate that in another 10 years, or about 1971, there will be telephone service for 9 out of every 10 farms. So that part of the REA job seems to be at least within shooting distance of accomplishment.

Of course, almost half of these electrified farms are being served by private companies or other agencies not financed by REA loans. And while I have no firm figure to support it, I would estimate that well over half the farms are being served by Bell companies and Independent companies not using REA financing.

Nevertheless, REA is fully entitled to the credit not only of putting on the power lines and telephone lines millions of farmers who otherwise would never have gotten there, but also of spurring the efforts of the non-borrowing utilities to get the job done.

And that certainly is all to the good. Total invest-

ment has been more than $5 billion, and the repayment has been excellent.

If we were to use a narrow and single track standard that all REA was supposed to do was to bring power and telephone service to the farmer, you might arrive at the simple conclusion that REA has been most successful in working itself out of one job and is in a fair way of working itself out of another in 10 years.

But you would be wrong. Government agencies, whether they are spending agencies or lending agencies, just do not work that way. I could be a little cynical at this point and say that REA had also been most successful in something else, namely, politics. There is no doubt that REA has come to have a powerful vote appeal which cannot be overlooked by congressmen from rural districts regardless of party.

See Explanation Elsewhere

BUT FAIRNESS and honesty compel us to look for another explanation for the obvious fact that REA is here to stay — and that it is in the best interest of all, as businessmen, as taxpayers, and most of all as American citizens, to see that REA works well. Difficulty arises first in defining the ultimate objectives of REA, and secondly in determining the best methods, the best tools with which to reach those objectives.

Let us agree, for the moment at least, that REA does have a continuing responsibility not merely to see that every farm in the United States gets telephone and electric service, but that it gets ample service and continuously better service, and at the most reasonable rates compatible with such service.

That broad statement alone could contain a host of far-reaching implications, some of which have already been revealed in the rural electrification field. There REA is now concentrating on financing generating and transmission plant, as shown by the recent $60 million loan to build a 200,000-kw generating plant in Indiana.

The implications are far reaching in your telephone field, with its constantly changing and improving telephone standards. REA has rightly insisted on dial service in its loan policy. More than half of the farm service is already dial. But telephone service might also be said to include toll.

Will REA — after all farms within reason have telephone service — then start to finance local area toll lines and, if so, through whom?

So far I have confined these comments to REA responsibility to the farm and to the farmer. But even that standard is not broad enough to encompass REA objectives in the future. In the electric field nonfarm customers now use more REA-financed service than farmers — about 55 per cent.

During the past two years, about three out of four new connections on REA lines were to nonfarm customers. Quite recently REA was authorized to make loans to small manufacturers for machinery used in rural area factories that employ rural or small town labor.

Understand, I am not saying this trend is wrong, or that it is anybody's fault. On the contrary, it was probably inevitable.

Paradoxically, as the number of farms continue to decrease from nearly 7 million in 1935 to about 3.7 million today, we see city dwellers spilling out into the rural areas, and the cornfields being subdivided for new suburbs.

This raises a question. Who was supposed to be benefited by REA? The farmers? They have been benefited without a doubt but now they are vanishing, sometimes from the very farm homes and buildings wired with REA money only a few years ago. And in their place, in some areas at least, we have a burgeoning suburbia — split-level ranch houses for two- and three-car families.

Thus REA, brought into existence to aid the starving farmers of the mid-thirties, now finds itself catering more and more to the station wagon trade!

Part of a Pattern

THIS IS NOT a paradox peculiar to REA. It is part of a general pattern in which the whole Department of Agriculture now finds itself. Its new Area Redevelopment Administration is helping depressed areas to open up new industries and improve community facilities.

For the first time since it was established, the Farmers Home Administration is making loans to nonfarmers for nonfarm housing in small towns. When we look ahead and try to see where REA is going or what it will be doing or whom it will be serving 10 years or more from now, we will certainly need a crystal ball. So much for ultimate objectives.

Getting back now to the REA telephone program, we may be more rightly concerned with *how* REA is moving towards these objectives than *where* it is going. So far, REA has followed a course different in making telephone loans than it used in its earlier electrification program.

This difference was primarily due to the 1949 law which set up the telephone program. Yet, if we leave the two laws aside for a moment — electric and telephone — we find certain similarities of basic administration tendencies cropping up in the telephone program today compared with those we witnessed more than 25 years ago.

At that time the first REA administrator, Morris Llewellyn Cooke, was trying to get REA launched under an executive order — before he even had any law at all. The similarities are so striking that when I hear and read some of the speeches and articles about telephone loans today, I have the same feeling one has when he sees an old movie on a television program in 1961.

On July 27, 1935, the electric companies offered to launch a quarter of a billion dollar rural electrification program, absorbing all of the $100 million which had been made available to REA. Administrator

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What's Ahead in Settlements?

By W. R. JARMON

Vice President — Revenue Requirements, General Telephone & Electronics Corporation.

MORE THAN EVER, telephone companies, as such, are becoming passe, as extinct as the dodo bird. We are, or should be, in the business of providing complete communications. And to survive in this increasingly competitive field, the telephone industry must be prepared to meet the public's needs for any and all types of communications.

This includes communications between any two fixed or moving points in the world, on land, by sea or in the air, whether they be in one building, across the street, or thousands of miles apart, and whether they take the form of simple signaling, data transmission or just plain voice.

The company geared primarily to provision of so-called "exchange" telephone service will not survive long in the future.

What has this to do with "What's Ahead in Settlements in Interchanged Business?" Let me suggest an obvious answer.

Stop and think for a moment how many of our present service offerings are furnished over facilities provided exclusively for a *single* service by a *single* company. Frankly, I have a hard time finding any. Almost without exception, our facilities are engineered, designed and used in common to meet the communication needs of our customers. And any one of these services using the facilities of more than one telephone company constitutes interchanged business.

Generally, when interchanged business is mentioned, we think solely of toll service, but all types of services may fall in this category. Moreover, rapid expansion of this business is inevitable in view of the ever-widening circle of social, political and business intercourse coupled with the changes taking place in the way we live and in the methods of running our economy.

Interchanged business always involves the problem of settlements. That is, just what revenues do we as

individual companies get from this joint enterprise, and is it profitable?

A good measure of the increasing importance of this business is the growth in the amount of settlements, dollarwise, during the past 20 years. In 1940 there were fewer than 4 million Independent telephones, and total revenues from all of our services were about $117 million. And $16 million dollars, or about 14 per cent of this revenue, represented settlements for toll traffic interchanged with Bell companies alone.

Last year 26 per cent of our revenues were derived from these toll settlements, or $265 million out of about $1 billion dollars in total revenues. In other words, in 1960 these settlements were more than 16 times the amount of our 1940 settlements. What is even more startling, they were actually over twice the amount of all the revenues received by our companies only 20 years ago.

Why the Phenomenal Increase?

WHAT HAS ACCOUNTED for this phenomenal increase, when the number of telephones served has multiplied only three times during the same period? Expansion in the types of services has accounted for some; extension of interchanged services is another cause; and the greater growth rate of toll is undoubtedly another.

But we should not forget what is probably the most important — the negotiations carried on by the responsible committees and officers of this association supported by Independent companies throughout the nation. I can assure you that increases in settlement levels are the result of hard work and perseverance, as they are not generally volunteered by any company, nor do they just happen.

As a result of the need to negotiate for increased settlements, toll separations and other forms of cost studies are no longer strangers in our midst. In fact, they have become almost routine. Let me emphasize that such studies are vital prerequisites to successful negotiations by either the USITA or an individual company. Without the data produced by these studies, negotiations for increased settlements would be most difficult, if not impossible.

We are now preparing to negotiate for a further improvement in the level of settlements. Studies of sample exchanges for this purpose are currently in progress nationwide. It is recognized that these studies mean increased work loads, and we all owe a vote of thanks to those companies contributing so generously of their time and effort.

Another major advance during recent years was the publishing in 1959 of our own *USITA Separations Manual*. This *Manual* is receiving wider application every day. The USITA has had a number of special study procedures during the past few years, but the 1959 *Manual* is the only complete separations procedure ever published by this association.

The National Association of Railroad and Utility Commissioners held its annual meeting in Atlantic City recently. During that meeting a resolution was adopted clarifying the section of the *NARUC Separations Manual* relating to digit absorbing equipment.

We have always maintained that the principles of separations recommended by the NARUC should be used in developing costs to the extent costs are necessary in connection with negotiations for improved settlement arrangements.

Fortunately, the *USITA Manual* already contains appropriate language relating to digit absorbing equipment.

The NARUC separations procedures are the result of many years of cooperative effort on the part of industry and regulatory representatives. Their uniform acceptance and application is important to all of us. With this objective in mind, we have consistently taken the position that the separations procedures should contain no discriminatory provisions.

By limiting the application to Bell of the cost averaging principle in the Modified Phoenix Plan, the NARUC procedures discriminate in favor of Bell customers and to the detriment of our customers. It is wholly illogical, if not illegal, to apply different yardsticks to identical plant in the nationwide toll network merely because of the make-up of its ownership.

The application of the Modified Phoenix Plan in setting interstate rates ultimately results in higher interstate rates for all interstate toll customers than would prevail otherwise.

For the Bell customers this is counterbalanced by a reduction in state rate bases. This results in lower state rates offsetting the higher interstate rates. On the other hand, our customers must pay the higher interstate rates without any such offsetting effect.

"Interconnected Network"

THE HEART of our industry is the "interconnected network," to use Mr. Kappel's words. That network has been most commonly known as the nationwide telephone, or toll, network.

It is no longer limited either to geographic areas or to voice messages. And with the advent of satellites it will become truly worldwide rather than nationwide. The fundamental service of our industry is to offer the customer use of our facilities to communicate anywhere at any time.

Communication needs today are far different than yesterday and cannot be furnished by simply adding some new piece parts to our already established telephone services. The change has been gradual with no obvious major factor or single development to which we can point.

The underlying cause can be found in the ever-increasing complexity of this nation's and now the world's economic and business structure. As a result, we are and must be prepared to provide whatever facilities are necessary to tie this complex structure together.

Please turn to page 83

The Frontiers of Rural Telephony

Modern, effective rural telephone service is vital not only to the people in our rural areas, but also to the full economic development of the nation in all of its parts.

By NORMAN M. CLAPP, Administrator, Rural Electrification Administration

WORKING TOGETHER is an art — an indispensible art in modern society — and an art that needs constant cultivation. It depends first of all on the full recognition of common objectives and interests. It depends also on a willingness to recognize each other's special problems which must be considered in devising the methods for reaching those common goals. And finally it depends on mutual recognition of each other's potential contributions to the common objective and an ungrudging willingness to give each and every one full opportunity — and full credit — for his maximum contribution to the success of the joint venture.

In these critical days when every thoughtful American must be aware of the grim competitive struggle for world leadership and survival, in which we as a nation are inescapably involved, we must develop the art of working together more than we ever have before.

We cannot afford to divide ourselves in petty squabbles. We cannot afford the luxury of doctrinaire arguments over mythical ideological concepts and issues which have little similarity to the practical, specific issues we face and are trying to solve.

We cannot afford the waste of tearing one another down to serve the selfish purposes of our own intramural competitive rivalries.

In this current world struggle for an order of values in which human freedom and individual rights may be preserved and flourish, we face an adversary that can concentrate its national energies on its immediate goals by sheer force and terror.

If we are to compete successfully, if we are to win this struggle for world leadership and the vital stakes involved, if our democratic way of life is to survive, we must be able to concentrate our national energies even more effectively to build our strength and security through the art of working together.

Communications Are Vital

ALL THIS APPLIES to us. Communications are vital to a strong America. The telephone industry is vital to a strong America.

Modern, effective, complete rural telephony is vital not only to the safety, comfort, and convenience of the millions of people in our rural areas but also to the full economic development of the nation in all its parts and knitting it more closely together.

You and I have a job to do — together. You in the comercial telephone industry and we in REA have been asked or directed — you have been asked, we have been directed — to do what we can to make

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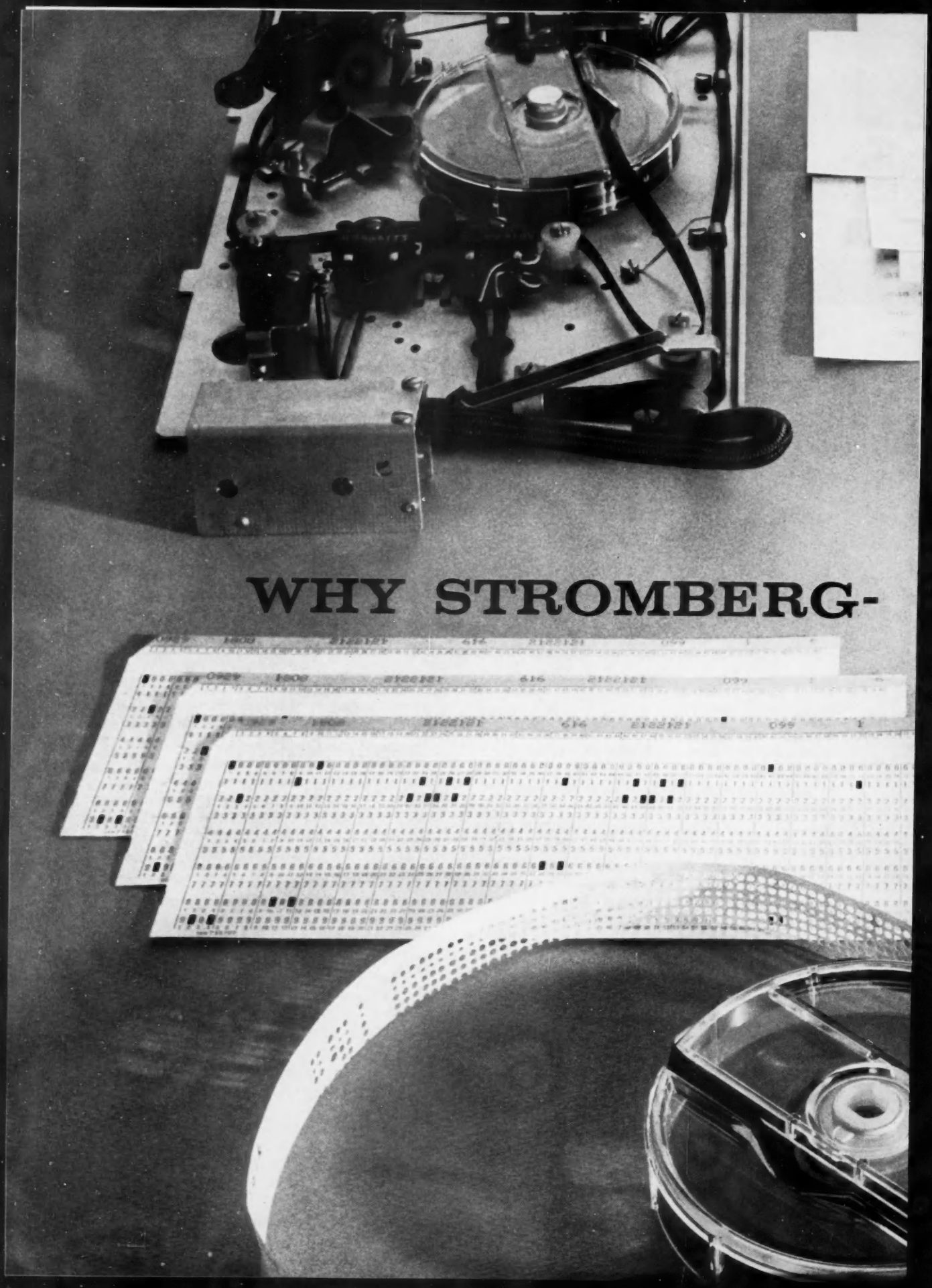
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modern telephone service available to the people of rural America.

When the Rural Electrification Act was amended by Congress in 1949 to provide a loan program for rural telephony, only 38 per cent of our farms had any telephone service.

Today the percentage stands at 65 per cent, but only about half of these subscribers have what can be described as modern telephone service. So there is still much to be done.

When Congress broadened the REA program to include rural telephone service, Congress expected the advantages of low-cost government loans and technical assistance to be used to expand rural telephone service on an area coverage basis.

Clear Air of Misunderstandings

IT IS APPROPRIATE that we get together and consider our common objectives in this program. It is also appropriate that we appraise our past progress, clear the air of any misunderstandings and strengthen our common purpose for the work ahead.

The REA program was born in 1935 to bring electric service to rural areas, an effort which has succeeded in reaching 98 per cent of our nation's farms. When it started, only 10 per cent of our farms were hooked up to central station electric service. In this initial phase, the REA electrification program has been tremendously successful.

Its success in area coverage is one we hope and believe we can match in the newer REA telephone program, as it gains time and momentum to grow.

But although there is a similarity in the objectives of area coverage for both programs, there are important historical, as well as legal, differences in the development of the two programs we must all recognize.

Tale of Two Programs

I AM commenting chiefly about our common interests in the rural telephone program, but let me tell you a significant story that begins with the development of the REA electrification program. This might be entitled "The Tale of Two Programs."

When the REA rural electrification program was launched in 1935, it was assumed by many of its sponsors that the existing power companies would do the job with the help of the low-cost loan program made available through REA.

At the very outset of the program the power companies were — and still are — eligible for REA loans when used to bring electric service to the unserved rural people specified as the beneficiaries of the Act.

The first REA Administrator, Morris Cooke, undertook extended but fruitless negotiations with the existing electric industry during the first year of his administration. He tried to work out with them a program by which they would expand their electric service on an area coverage basis in the rural areas with REA assistance.

But they were not interested. They said they were already serving the farms where service was practical and feasible. They said it was out of the question to talk about building lines down roads where the customers only averaged three to the mile. They said such insanity would never pay out.

So they passed their opportunity by. But the farmers, who wanted electricity, were not content to leave it at that. They got busy and organized their own cooperative systems, applied for REA loans, and provided their own electric service.

Today these cooperative systems alone serve about half of the farms of the nation. They average about three consumers to the mile. We have some borrowers with systems averaging only one meter to every two miles of line. Yet they are making it pay out.

Out of 990 borrowers in the program at this time, only one is delinquent in its payments. Out of about $4 billion loaned to all electric borrowers, this one delinquency amounts to only $81,000.

Now the power companies wish they had the systems and are trying hard to break back into the same rural territories they passed by as unprofitable. The people who took the early risks and built the systems that did the job naturally are resisting these second thoughts of the power companies, and feel their own efforts, their own investments and their own business enterprises are properly entitled to protection. So do we at REA.

This is one part of the "Tale of Two Programs." The other is notably different in many important aspects.

Independents Pick Up REA Program

THE MOST SIGNIFICANT difference is in the way the Independent telephone industry picked up the REA program with its offer of long-term, low-interest loans backed up with technical assistance.

Since 1949, when Congress amended the Rural Electrification Act to provide telephone loans, 543 Independent telephone companies applied for and received REA financing.

Family-owned and investor-owned companies make up close to three-quarters of REA's telephone borrowers. Out of more than $821 million in telephone loans approved, the commercial companies have $532 million.

In their loan contracts, these companies have undertaken to use this financing to improve and expand service to more than 1,140,000 subscribers, most of them in rural areas. This is modern dial service at reasonable rates, which looks toward the objective of maximum area coverage.

The first telephone loan which REA made went to a small Independent company in Alabama. The first REA-financed plant for the new rural service was put into use by a small Independent company in Virginia — and that same borrower made the first repayment

Please turn to page 88

the telephone notebook

Do well-intentioned rules and red tape often snarl customer or company? Here's one man's story.

■ Every now and then a soap or corn flakes company runs a contest based on a sketch containing a whole flock of deliberate errors, such as shadows going toward the sun, people with their shoes on backwards. You've seen them—The idea is to find as many mistakes as possible and send in your list to contest headquarters. Find enough, and you win a plastic hockey puck or a free ticket to a Mau-Mau installation ceremony.

The following is a contest letter, of a sort. It's a word-for-word reproduction of a real customer to a real Bell System president. The customer, as you'll see, was also real fed-up.

Contest: How many phone company errors can you find?

(1) Oct. 19 — Called telephone company, ordered service (private line) for new home. Was promised installation morning of October 24.

(2) Oct. 24 — No installer, no word. Struggled through business office channels, telling complete story each time, finally found representative handling order. Was told:

(a) No service available.

(b) No prediction could be made as to when service would be available.

(c) Failure to notify of cancelled appointment was regretted.

What's Wrong With This Picture?

(3) Unable to understand complete unavailability of service, kept trying. Finally promised "some sort of service" to be installed October 29. Would not be private line. Asked how many ahead on list for private line. Told information not available. Same story from next higher echelon. Refused to accept answer. Finally told I was 10th on list for cable. Asked how many lines to a cable. Was told, "Don't know."

(4) Oct. 29 — No installer. Received form letter stating:

(a) No service available.

(b) No prediction could be made as to when service would be available.

(c) "We're grateful for your being so patient and understanding."

(5) Oct. 31 — Called signer of form letter (more from curiosity than hope). Was told:

(a) Form letter had been sent in error.

(b) After letter erroneously sent, crew visited neighborhood, but found cable "defective."

(c) Because of defective cable, no service available.

AE

provides business communications for large or small subscribers!

Let's take a look at two completely different commercial customers in your area. The farmer often wants an extension phone in the barn... so that he doesn't have to run back to the house for a call. For this customer, our Type 90 wall phone is ideal...

The large lumber yard, on the other hand, needs a complete communications system to handle incoming, outgoing and internal traffic. This customer needs a PABX system. AE gives you stock delivery on six PABX boards.

For details on our complete line of business phones, PABX and PBX boards and key systems, see your AE representative. He can also furnish you with valuable sales aids to help you promote business communications equipment. To contact him, just write Automatic Electric Sales Corporation, Northlake, Illinois.

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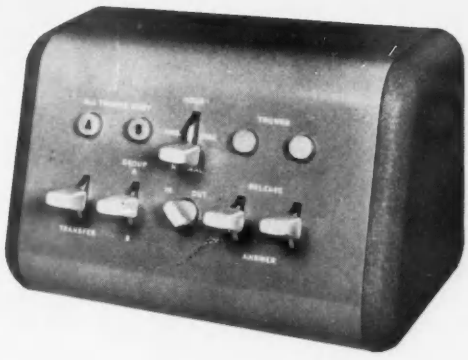
GENERAL SYSTEM



TYPE 33A6A PABX

A complete communications system for up to 20 phones. Handles up to four inside and five outside calls at once—using standard phones. Compact attendant cabinet (shown here).

TYPE 90 WALL PHONE

A space-saver with narrow profile design. Special-angle dial is easy to use. Side-mounted handset can't be brushed off hook. Simple installation and maintenance. Choice of 10 colors.

(d) No prediction could be made as to when service would be available.

Swallowed disbelief. Asked point-blank if this meant we could wait *three years* and still not have telephone. Was told this was possible.

(6) Decided to back up and start over. Went outside normal channels. Started at higher level. Was promised installation of "probably a two-party line" on Friday, November 4.

(7) Nov. 4 – Installation made, four-party line. Felt things were looking up. Unfortunately, installer neglected to mention telephone would ring when another party was being called. Also forgot to hook up telephone to receive incoming calls. Spent week-end wondering why we kept getting someone else's calls and no one could call us.

(8) Nov. 7, A.M. – Called old familiar service representative. Within hour installer arrived, fixed telephone. Unprepared for shock of prompt service, but appreciated nonetheless. Service representative called to see if everything O.K. Other party on line also answered phone. Service representative told us other party apparently not aware of our ring. If this keeps up, we should explain to them. If any trouble, call the telephone company.

(9) Nov. 7, P.M. – Repairman arrived with order to remove two telephones. Wife suggested removal possible over dead body. Explained situation. Repairman conceded possible mistake, retreated.

(10) Nov. 9 – Second repairman arrived with order to remove two telephones. Mild-mannered wife gave spirited opinion of telephone company. Repairman said he'd check with office since there might have been mistake.

(11) The one item, which added the final touch to our frustration, was a suggestion made by one of the men with whom we talked during the campaign. He suggested that, since there were 10 of us in this neighborhood waiting for private lines, if we raised a big enough squawk the telephone company would probably provide us with the desired service. I thanked him for his suggestion and assured him we would give his advice a try if more reasonable efforts failed.

We have all kinds of practices, routines, cross-checks and voluminous records, so this kind of thing won't happen. So what happened? Breakdown in the system? A one-in-a-million chance combination of poor information, misunderstanding and bad breaks?

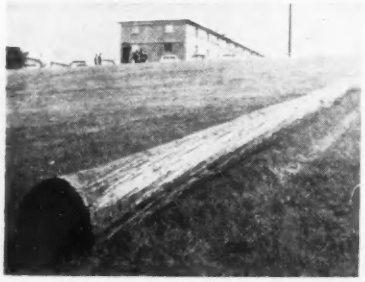
We checked, and it's both. But peel all this off, and one uncomfortable fact remains: All kinds of phone people had a chance to help this customer – not by using soothing techniques, but simply by being human and concerned.

We've got good trained people and pretty fair rules or practices. Practices can be changed when they don't help us do our job. We're changing them all the time, as the job changes.

But when a customer gets the big-company runaround – a "No" answer without a good explanation, or when rules become all-important beyond the point of common sense – then we get letters like this one. In a way, it's more important to read this kind than the *bouquet*. After all, the customer is paying for good personalized treatment.

The telephone person who provides service from the customer's viewpoint gets job satisfaction every day. No contest has a prize that valuable – (*From Pacific Northwest Bell Tel. Co.*)

'Copter Carries Pole, Puts It in Place



■ A helicopter pilot and his crew recently demonstrated to watching telephone men that a 'copter can set a 90-ft., 7,000-lb. pole in a 14-ft. hole in 15 minutes.

Viewers from Southern Bell Telephone and Telegraph Co. saw the 'copter hover over the giant pole at Fort Benning, Ga., while crewmen

IT'S YOUR CHOICE...

Pick the Distribution Wire that suits you best

MUTIPAIR FIGURE 8

Available in No. 19 or 22 AWG . . . Fully color coded . . . Choice of .109" or .134" messenger.

SINGLE PAIR FIGURE 8

Available in No. 19 AWG . . . One leg of twisted pair has white stripe for identification . . . Choice of .083", .109" or .134" messenger.

Whatever your requirements in Distribution Wire may be, Whitney Blake can provide you with a high quality product that will meet your specific needs.

WRITE for new bulletin on the Distribution Wire of your choice.

Bulletin T-6 . . . . Jacketed Pair

Bulletin T-8 . . . . Multipair and Single Pair Figure 8

JACKETED PAIR

Available in No. 19 or 22 AWG ...Fully color coded...Extremely tough...Easy to handle...Truly economical...Choice of .109" or .134" messenger.

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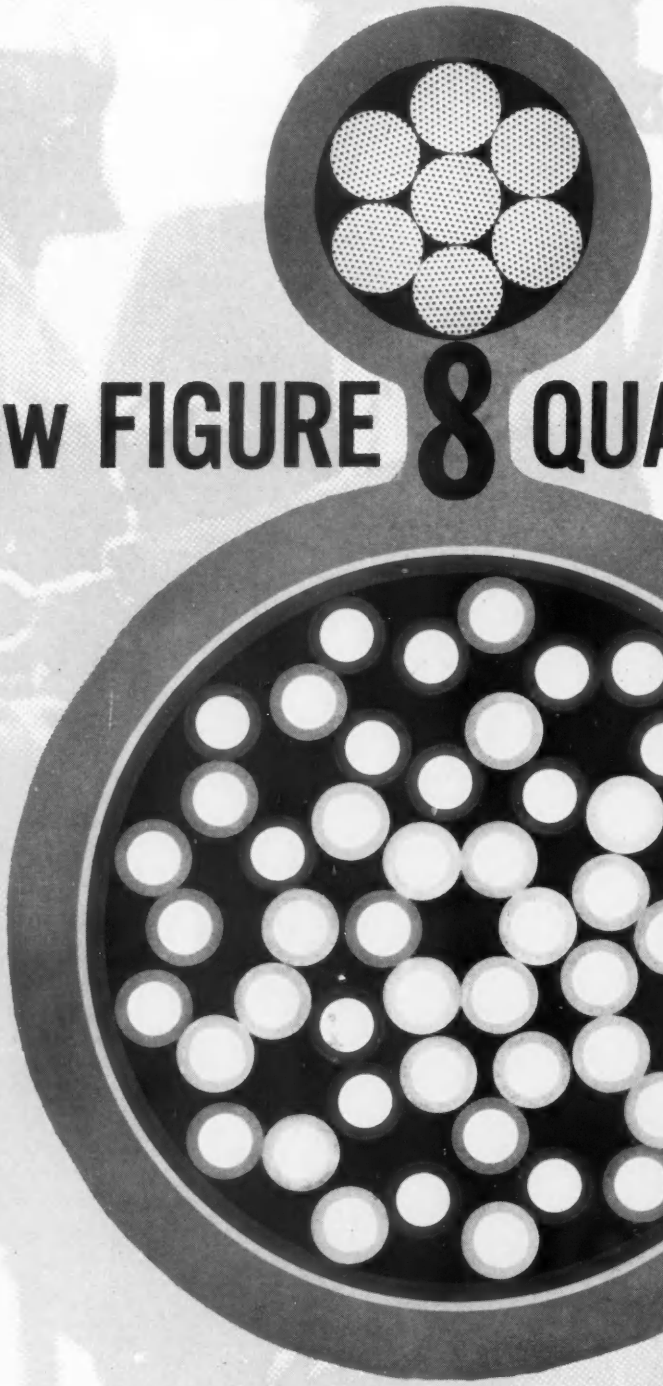

How FIGURE 8 QUALPETH

General Cable's FIGURE 8 QUALPETH cable consists of both cable core and strand covered by a single polyethylene jacket.

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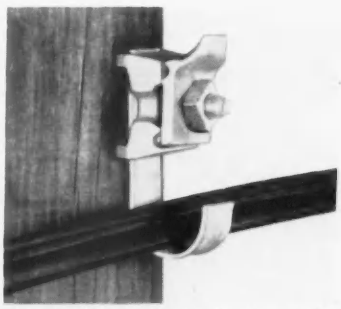
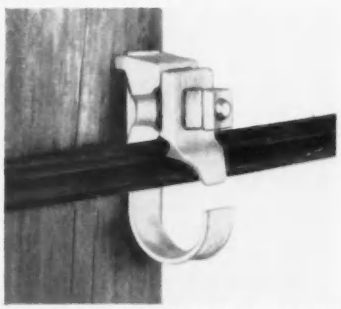
Cuts Your Installation Costs!



To install Figure 8, simply place cable over the j-hook of the cable hanger prior to tensioning.



After tensioning, the cable is secured in the groove of the hanger. J-hook now serves as safety strap. No separate strand placing. No cable spinning.

General Cable's Figure 8 Qualpeth cuts your installation costs lower than ever before. With Figure 8 Qualpeth you eliminate the time and money-consuming operations of strand placing and cable spinning.

Figure 8 Qualpeth is one complete unit. It consists of both the cable core and strand covered by a single polyethylene jacket. You simply place the cable onto a special cable hanger and sag the cable by proper tensioning of the strand. After tensioning, the cable is secured in the hanger.

By eliminating the strand placing and cable spinning operations, you reduce labor costs, installation time, and transportation costs.

Another General Cable bonus: A sealing compound is used to fill the spaces between strands and jacket. This prevents entry of water, curtails corrosion, and adds years of service to cable.

Figure 8 Qualpeth is available in 6 to 400 pairs. It comes in 19, 22, 24 and 26 AWG. Write today for price and delivery information.

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manufacturers of telephones, switchboards and related apparatus since 1907

readied a sling attached to the aircraft.

Men on the ground talked with arm and hand signals to a member of the 'copter crew crouched beside a small access door in the center of the plane's belly. This crewmember relayed the signals to the pilot by way of the 'copter's intercom system.

Attached to the pole top was a steel cable. As the 'copter stayed about 10 ft. overhead, men on the ground linked the cable to the sling underneath the aircraft. The pilot then flew his 'copter straight up, lifting the pole vertically until its bottom end was approximately 10 ft. above the ground.

Flying the pole to the hole, the pilot carefully lowered the pole into place, holding the 'copter steady until ground crewmen could pick up guy lines and secure them to anchor rods.

Crewmen signaled the pilot, who pressed an automatic cargo release button. The 90-ft pole stood alone.

Donated by the Benning Infantry Signal Section, the pole will be used by the Second Division Military Radio Station to support antennas.

Incidentally, although Southern Bell has no future plans to use 'copters in this manner, the company and other Bell System operating companies have used 'copters in the past to spray right-of-way or check pole lines after severe storms. (*Southern Telephone News.*)

SAFETY CORNER

Hints For Halting Electric Shock Accidents

■ Whenever a person comes into contact with wires, conductors or equipment carrying electric light or power current, he may suffer an electric shock. The seriousness of the shock is affected by how contact is made and how long it is maintained.

When hands are wet, contact with the wet hands is much more dangerous than when they are dry. Water is a good conductor of electricity.

When a person receives an electric shock, he may suffer injury in these ways:

(1) Nerve shock, if great enough, will cause the stoppage of lung or heart action or both.

(2) Burns may be sustained, especially where current enters or leaves the body.

(3) The surprise effect from the shock may cause a man to fall from a pole or ladder.

(4) Involuntary muscular contraction is produced by an electric shock of any intensity. This contraction may break the contact, freeing the victim. More often it causes him to grasp the conductor tightly and, unless he is rescued, may result in death.

Reasons for Electric Shock Accidents

Rubber gloves not being worn when required.

Rubber blankets not being used as protective equipment when setting poles under hazardous conditions.

Lack of respect for or careless behavior around electrical circuits and equipment of all kinds.

Working too close to power circuits and equipment, whether aloft or on customer's premises.

During wire stringing or removal operations failing to tie down wires, while they are being worked on in the vicinity of foreign wires, to prevent them from flipping up into the electric and power circuits.

Men fail to survey the job for electrical hazards.

Failure to use the B Voltage Tester when required.

Why Most Electric Shock Accidents Occur During Relatively Warm Weather Months

Men wear fewer and lighter weight clothes.

Perspiration and wet clothing lowers contact resistance, as do wet, damp work areas, such as basement floors.

Moisture, as a result of frequent rain, causes more trouble on plant. Lightning storms may develop considerable trouble on lines and equipment in telephone plant and power company plant. This results in more field activity by telephone men and increases incidence of exposure to power hazards of all kinds.

Individuals may be less alert.

Precautions to Observe to Avoid Electric Shock

Consider all foreign wires and cables, indoors and outdoors, as energized at all times and a potential hazard. Remember, 110 volts can be fatal.

Survey your assigned job and look over surrounding conditions before starting work. Be extremely alert for broken or fallen foreign wires or other electrical hazards.

Look for, and report, hazardous conditions. Do it promptly before it is forgotten. If the condition found makes it unsafe to proceed with the work, contact your supervisor *before going ahead with the work.*

Employes should be familiar with specifications and instructions on clearances between telephone plant and light and power facilities on jointly used poles or in crossings, and between telephone plant and other foreign wires, such as fire alarm circuits. They must follow instructions and specifications at all times and not take unsafe short cuts or chances.

If power lines in the vicinity of an assigned job are known to be in trouble, no repairs shall be made on

Defies the Weather!
ALL-WEATHER CORE permits splicing or terminating without the need of restoring jacket. Constant exposure to weather does not affect physical or electrical characteristics.

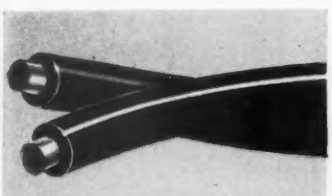
SUPERIOR I.M.-RDW

RURAL DISTRIBUTION WIRE

Low-cost, speedy installation • Less maintenance

- **NYLON RIP-CORD**—Easy stripping of jacket for terminating or splicing.
- **High-strength galvanized steel integrated messenger**
- **High-density black polyethylene conductor insulation**
- **Permanent, inlaid color-coding stripe identifies pairs**
- **Tough, polyethylene jacket extruded overall**
- **19-gauge soft-drawn copper conductors**
- **No special installation hardware**

Order Superior IM-RDW for subscriber line use or for the distribution of subscriber circuits from a main cable lead. Available one through eighteen pairs.



COLOR-CODING STRIPE of monofilament polyethylene, inlaid* permanently in conductor insulation, will not weather off, flake off, scratch off or absorb moisture.

**Patent applied for*

Write for complete details to

SUPERIOR CABLE

Superior Cable Corporation • Hickory, North Carolina

5392

TELEPHONE

ALCOA BOOTHS INVITE WHOLE FAMILIES TO CALL NOW... UP REVENUE 40%

In Bowie, Arizona, Apache Automatic Telephone System reports:

"Since we installed three Alcoa Outdoor Telephone Booths in Bowie, a popular stopping place for vacationers, our revenue has jumped 40%," explains L. O. Scott, manager of Apache Automatic Telephone System. "These convenient booths spur tourists into calling back home.

"We chose standard Alcoa booths. They're roomy enough to let the whole family get inside and talk to Grandma or listen in.

"Upkeep's proved negligible," continues Manager Scott. "Occasional soap-and-water washings. Our Alcoa booths discourage vandalism and won't need painting. These booths are built to withstand punishment. Besides, they're well-lighted at night.

"In fact, we're so pleased with our Alcoa booths that we plan on putting in more."

You'll discover Alcoa* Telephone Booths real revenue boosters, too. They fit just about anywhere that's handy, singly or in tandem. Made of Alcoa Aluminum, they resist wear and corrosion, won't rust. Alumilite* finish stays good-looking and attractive with little care. Doors won't stick or warp; glass breakage is minimized. If space is no limitation, check into the large Alcoa outdoor booth; for indoor and most exterior locations, your best bet is the Alcoa "Compact" booth —only 28¾ in. square. Get all the facts by calling your telephone supply jobber, or by writing Aluminum Company of America, 1781-X Alcoa Building, Pittsburgh 19, Pa.

*Trade Name of Aluminum Company of America

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

Entertainment at Its Best . . . **ALCOA PREMIERE** with Fred Astaire as Host . . . Tuesday Evenings, **ABC-TV**

associated telephone plant until the electric power trouble is cleared or until definite assurance has been obtained *from a responsible representative* that the telephone plant is free from possible contact with foreign wires.

Collapsible open wire reels and drop wire reels shall be grounded when running open wires on the same pole line with, or when placing wire parallel to, light and power construction, regardless of the voltage involved. Rubber gloves must be worn during these operations.

Guy wires, span wires and other wires used by electric light and power systems, even though equipped with insulators, may be dangerous because of defective insulation or leakage of current through insulators.

Keep a mental picture of the "umbrella area" whenever working on jointly used poles. Restrict activities to this area when working on such poles.

Never stand on or touch street light fixtures or any other electric light or power construction on a pole.

Avoid bodily contact with exposed vertical light leads when placing safety strap around a pole.

Use extreme caution and wear rubber gloves when working with derricks, chain hoists, strand ends near light or power wires.

Rubber gloves shall be worn when required. Remember, rubber gloves protect the hands and wrists only. Keep other parts of the body clear of contact with objects and wires which may carry foreign potentials.

When using steel fish wire, precautions shall be taken to prevent the fish wire from contacting exposed bus bars, light or power wires or associated equipment.

In the vicinity of electric light or power wires, use only a dry cloth measuring tape that doesn't contain metallic threads.

The covering of foreign wires should always be considered a weatherproofing and not insulation.

The handling of electric light power wires, associated switches or fuses on outside plant by employes is forbidden, except when done to prevent serious injury or loss of life. In such case, rubber gloves shall be used.

Broken wires of other companies hanging from poles and other aerial supports shall not be touched, but shall be reported per local instructions.

In emergency repair situations and during disaster and storm restoral work, *always wear rubber gloves when handling or working on open wires.*

Tie down communication wires while they are being worked on in the vicinity of foreign wires, to prevent wires from flipping up into the electric or power circuits.

Employes shall not expose themselves to hazards from lightning discharge by working on poles or aerial plant during thunderstorms occurring in the immediate vicinity of the work location. Past experience indicates similar danger of exposure doesn't exist while working in manholes, basements, cable vaults. Exercise good judgment at all times during thunderstorms to avoid unnecessary exposure to lightning hazards.

Men should be advised when given trouble assignments of any information available at the time regarding possible light or power crosses.

By his tests the test deskman often can determine this condition and shall make a note on the line card of the condition.

B Voltage Tester

■ The B Voltage Tester can play an important part in prevention of electric shock accidents. The results achieved through the use of this device depend on the spirit and manner in which it is used.

There have been numerous cases reported where our men have used the B Voltage Tester as required and have detected the presence of hazardous potentials on power company facilities on joint use poles.

Instances such as these should stimulate the full use of this device so workers can gain by it.

Take Proper Precautions

■ The soundness of these points has been tested and proven through the hard school of experience. Recently after reviewing the facts in previous electric shock fatalities, the investigating committee concluded in all cases that the accidents could have been prevented, had any one or any combination of these points been observed. *Unsafe acts by workers are the prime cause of almost all electric shock accidents.*

Industry members can't relax their efforts for a moment to avoid electric shock, whether the season be winter or summer. But it's certainly good insurance to recognize the greatest vigilance is needed when the seasonal influence increases the hazards.

Rubber gloves are important. But workers must remember that they should not depend on them entirely to the complete exclusion of other things which should be done on every job when they are working near foreign circuits. If they rely on rubber gloves alone, they are apt to get into a situation which unfortunately may result in a fatality.

The properly planned and executed job won't allow contact of tools, equipment or personnel with power wires or equipment, or any foreign plant about which there may be a question.

You can't afford to take a chance where electricity is concerned. There are all kinds of national statistics available which prove that 110 volts can kill.

(Adapted from "Safety Training Lessons," New Jersey Bell Tel. Co.)

TE&M readers are interested in short-cuts to better operation, higher morale, lower costs. Your own stories — or those you've read in local news media or the company house publication — assist TE&M's coverage of these fields. Drop us a note or send in the item. We'll be happy to consider it for publication in TE&M's Telephone Notebook.

SUB-HARMONICS and OVERTONES

By C. D. EHINGER

Pres., Citizens Telephone Co., Decatur, Ind.

Characteristics Of Transmission Lines

186,000 MILES PER SECOND

When Jim Desmond attempted to explain a few fundamentals concerning the impedance of telephone circuits, he discovered the Kid had never heard of "complex notations." Follow along as the Kid tries to learn the meaning of 416-j399 as the characteristic impedance of certain 22 gauge cable at 1,000 cps. (Continued from October 1 TE&M)

THE KID brightened. "I think I've got that fairly cold, Jim," he said. "Seems like all you have to know is Ohm's Law, or E=IR, and you can figure out almost any problem you get into."

Jim looked at the Kid, bemused. "Is that so? I didn't realize dc theory was that simple. Let's review a few things and see if you really have it *cold*."

Jim obtained a pad of scrap paper and picked up a pencil. He walked quickly to the power board of the Centerville exchange and made two readings. Then he returned to his desk.

"Kid, I just read the battery voltage and office load. Our office battery read exactly 48.0 volts, and the office load was 100 amps. Now what load did the Centerville office put on our plant battery right then?"

The Kid started to speak but stopped and did some figuring. "That's easy, Jim. The office load at that moment was .48 ohms."

Jim grinned. "How'd you figure that, Kid?"

"Well, if E=IR, then R=E/I. That would be 48 volts/100 amps— or about .48 ohms."

Jim grinned again. "I shouldn't laugh, Kid, because I slipped you a trick question. You're not quite right, but you'd see the answer if you drew a diagram of the circuit."

He watched while the Kid blocked in the office battery and office load. Finally Jim commented:

"You assumed the source of voltage, our office battery, had no resistance. But this isn't the case because a battery has definite dc resistance that increases with age. And long-timers in the telephone business have learned this through bitter experience.

"We've found that an over-age central office battery with high internal resistance can cause more problems than Carter has pills."

Chuckling, Jim added, "I'm not going to dock you, because the question was a curve. The right answer is .48 *ohms less the internal resistance of the battery*."

He went on. "Let's take a few fundamental situations. What would happen, Kid, if I put our 48-volt office battery directly across a 1 mf condenser? Or if I placed a dc ammeter in the circuit, what would be the reading in amps?"

"Well, Jim," the Kid said, hesitantly, "after the circuit had settled down to its solid state, there wouldn't be *any* current flow if the condenser was a good one. Direct current doesn't flow through a condenser."

Jim laughed. "Good! Now describe the whole sequence to me."

The Kid spoke carefully. "When the 48-volt plant battery is first placed across the condenser, there'd be a large rush of current. The meter needle would kick to a high rating and slowly come back to 0.

"The speed rate of the meter needle would depend on the resistance of the meter and the battery and the value of the condenser in farads.

"As I remember, Jim, this is what they call the RC time-constant of the circuit. The needle would read 0 at roughly five times the value of RC when R is in ohms, C is in farads, and the time is in seconds."

"Right on the button, Kid. You have that one down pat. If we had a voltmeter across the condenser, what would have happened to it?"

The Kid thought, taking his time. "The voltmeter

would read 48 volts after a time, Jim. In fact, the voltmeter would actually read 0 when voltage is applied to the condenser and would rise to 48 volts in the same time the ammeter takes to get down to 0."

"In other words," Jim said, "the current would be at a maximum at the time the voltage is applied and would then go down to nearly 0 on an exponential curve, with the time dictated by the RC time constant. Voltage would be 0 at zero time and would then rise to 48 volts with the time interval again depending on the RC time constant."

Jim doodled on the scratch pad. "As a memory crutch, Kid, remember there is current flow in the condenser, at a maximum, *before* there is a maximum voltage across the condenser. Get this: In a circuit involving capacitive reactance, the current *leads* the voltage."

Jim glanced at his watch. He still had plenty of time to help the Kid. "Okay, now how about a case when you have a circuit involving some resistance and an inductance and suddenly apply dc voltage to the combination? What would happen if you had an ammeter in the circuit and a voltmeter across the inductance?"

The Kid pondered and then spoke up. "The ammeter would take a certain interval to rise to its steady-state reading. This time would be a function of L/R, where L is the value of the inductance in henrys and R is the total resistance of the resistor, the inductance, and the internal resistance of the battery.

SUBMIT YOUR PROBLEMS

You are invited . . . to tell TE&M authors your problems of department policy or procedure on which you'd like to have an opinion.

While we don't claim to have all the answers, we'll welcome the opportunity to discuss as many as possible in our columns.

"The voltmeter across the inductance would have a high reading at first and then would decrease in value until it reached its steady-state reading. This would be set by the steady-state value of direct current multiplied by the resistance of the inductance."

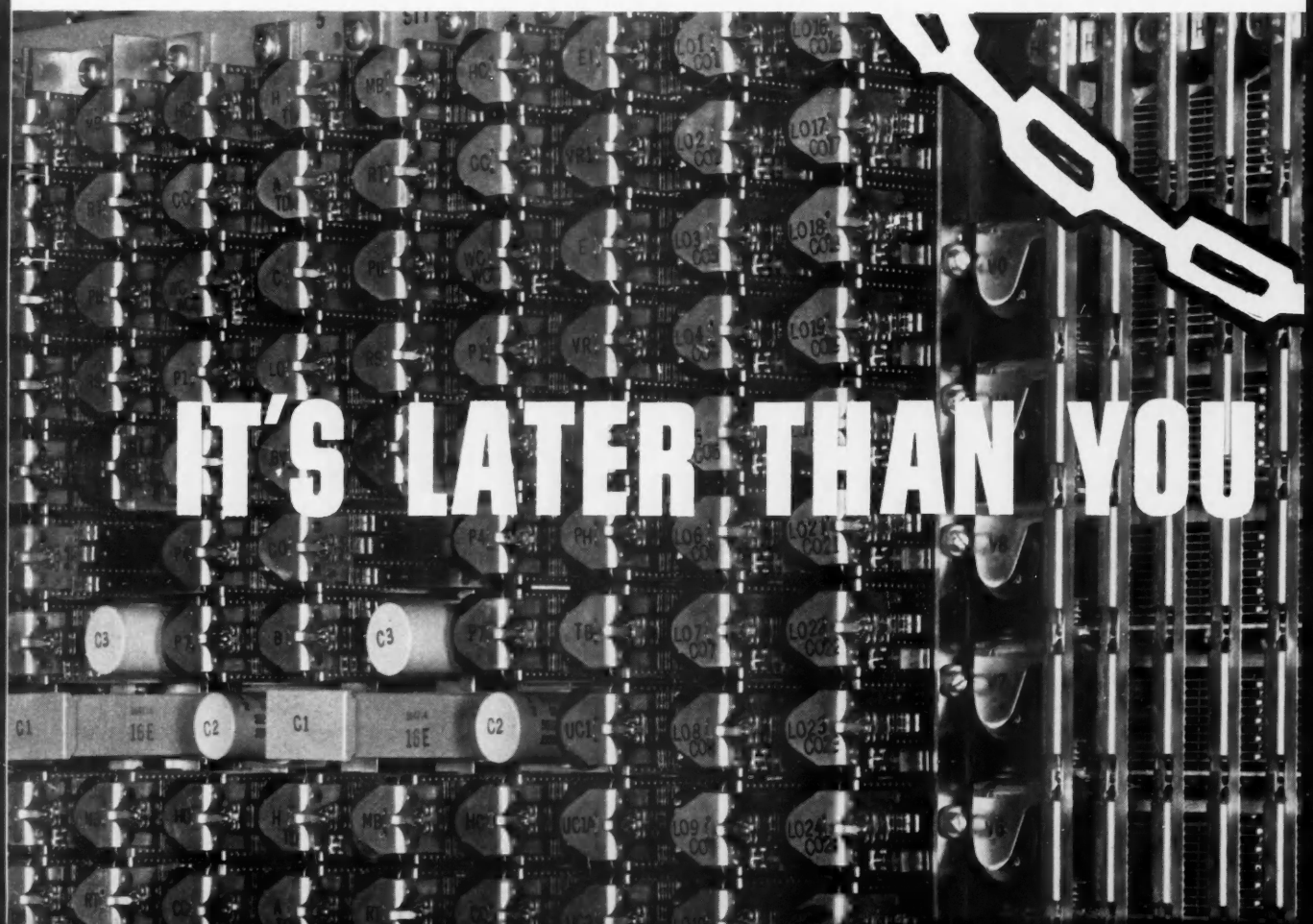
"Good again," Jim smiled. "You accounted for all elements in the circuit and remembered that there's such a thing as internal resistance of a battery.

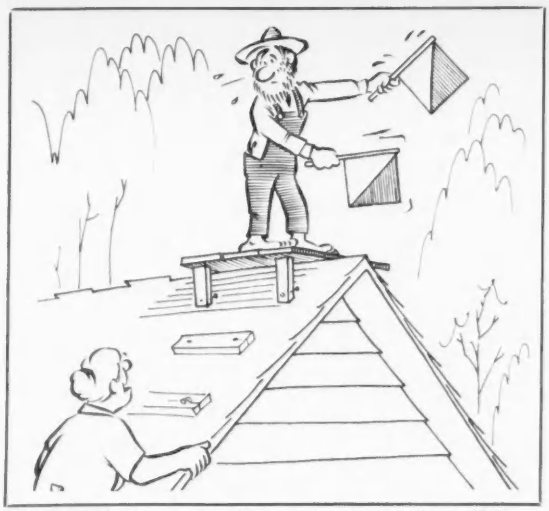
"The main thing I was after was to get you to say that current builds up slowly in an inductance and reaches its full value in a number of seconds determined by approximately five times the value of L/R.

"Use this situation as another crutch. Remember, the current is lagging behind the voltage in an inductive circuit."

The Kid spoke up eagerly. "I knew all that before you went into it, Jim. But what does all of this have to do with those things you were calling 'complex notations'—that use that little 'j'? That kind of thing really confuses me!"

Jim felt like throttling the Kid — but didn't. Instead, he said:





"Why don't you install an extension at the still?"

"Okay then, Big Shot, tell me the answer to this problem: Suppose, by the proper use of an oscilloscope and accessories, I've been able to show two ac wave forms on the scope at the same time. One is for the current and the other is for the voltage, and by correct measurement I find the current is leading or is ahead in time of the voltage by ⅛ of a cycle.

"My ammeter tells me the r.m.s. value of the ac current is 10 amps. How would I write that down or describe it to make sense to anyone else?"

The Kid thought awhile. "Since you tell me the current is leading the voltage, I know it's part of a circuit that's essentially capacitive. I also know the current is leading the voltage by 45 degrees, since you said it was ⅛ of a cycle.

"This I can find by dividing 360 degrees by 8, which equals 45 degrees or 2π radians divided by 8 which would equal $\pi/4$ radians or 45 degrees. Jim, I'd describe it by saying it's a current of 10 amps leading the voltage by 45 degrees."

"You're right, Kid. But who wants to use all that long-winded description to tell about something? Let's use a shorthand method to describe this current simply as: $I = 10\angle 45°$. This is called 'Polar Notation.'

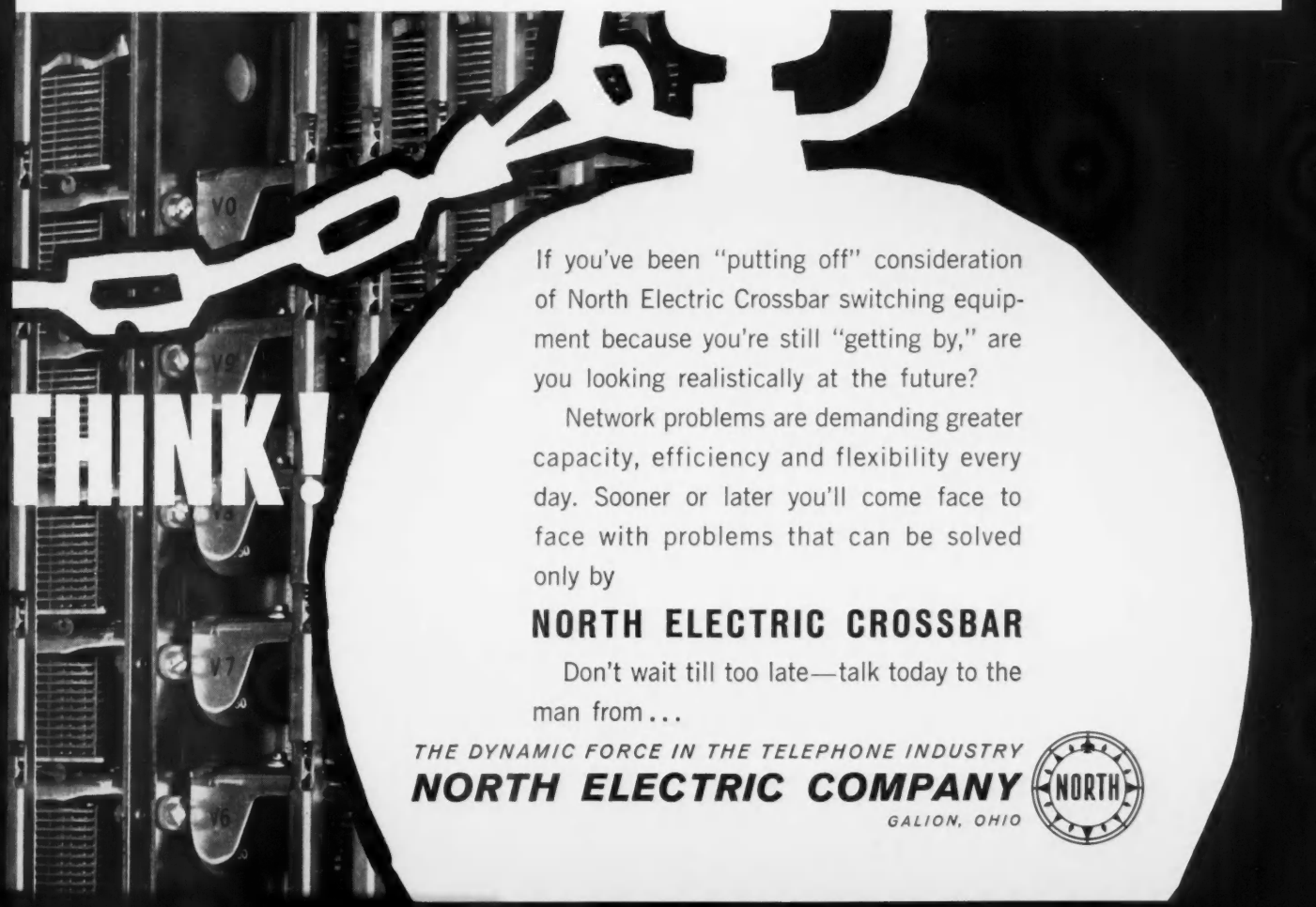
"Another way to describe it would be: $I=7.07+j7.07$ and is called 'Complex Notation.' "

The Kid almost yelled, "There you go again with that 'j' business, and I don't know what you mean!"

* * *

In the next installment, Jim Desmond finally begins to get complex notations across to the Kid.

Any comments, criticisms, or suggested subjects for a future topic? Address all correspondence to "Sub-Harmonics and Overtones," Telephone Engineer & Management, 7720 Sheridan Rd., Chicago 26, Illinois.



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THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

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"The New Look In REA Loan Policies?"

(Continued from page 52)

Cooke seemed very pleased.

Two months later he said to President Roosevelt that progress was being made and "praised the private industry for its marvelous response to the program."*

Two months after that the whole thing blew up.

Former REA Administrator Slattery in his 1940 book blamed it on the companies for refusing to meet Cooke's "reasonable terms." The companies blamed it on REA insistance on complete first mortgage requirements which they could not meet.

Whatever the reason, the fact is that REA to this day has not made electric loans to private companies except in an insignificant number of cases.

Congress Passes REA Act

SHORTLY AFTER THAT, Congress passed the first REA Act, which still authorized REA to make such loans to private companies, but also provided a preference in favor of public ownership borrowers and co-operatives. Since that time, the great portion of REA electric loans has been made to co-operatives.

The number of electric co-operatives rose from fewer than 50 throughout the whole nation to almost 1,000 today — literally created by REA financing. Only a small portion of these loans have gone to the other preferred types of government agency borrowers, districts, municiples.

Clearly, in that four-month period when Administrator Cooke completely changed his mind about dealing with the private companies, the co-operatives became the preferred type of borrower for electric loans.

I do not suppose anybody can have any objection to a co-operative at the local farm level, because it is merely a group of farmers trying to do for themselves something which a commercial enterprise cannot do for them and make a reasonable profit.

The simplest example I can think of is the milk can co-operative where a number of farmers pool their milk can pickups by buying a truck and having one of their number drive the milk into the dairy. This came about naturally, mainly because a commercial trucker would not find such business worthwhile. And milk farmers would find it even less profitable to do it for themselves individually.

As a general principle, I do not think any businessman has any objection to farmers or any other group supplying themselves with nonprofit services in these areas where private enterprise could not afford to serve.

But when we come to the telephone business and the electric business, where operations are on a scale that would attract commercial capital, then we find a certain amount of friction.

One would not ordinarily think of these relatively complicated businesses as likely to attract co-operative enterprise in management on a broad scale. One would think that the average group of farmers were not equipped for it. And, as a matter of fact, these utility enterprises did not attract co-operatives on a broad scale until REA appeared in the picture.

It is true that in the early years of this century, when telephone operations were relatively simple, a number of the so-called farmer mutual co-operatives developed. I saw one estimate that around 1925 there were as many as 40,000 of these tiny mutual co-operatives.

When the depression came along most of them folded up; some were taken over by commercial companies; and only a handful survived until REA got into the picture. In other words, the co-operative movement seemed *on the way out*, in the utility business at least, when REA — first in the electric field and later in the telephone field — reversed the trend by throwing the resources of the federal government behind these co-operatives.

We all know the various objections that some commercial companies have to the co-operatives in this business. They have to do with income taxation, from which they are largely exempt; they have to do with regulation, from which they are largely exempt; and they have to do with subnormal interest rates on REA loans which must be looked upon as a form of subsidy by the taxpayer.

Whatever these objections, we cannot charge the federal REA with the responsibility, because it lies elsewhere. It is up to Congress and the state legislature to remove these inequities. But until they are removed, it is also a valid consideration for REA to consider the consequences of any policy in the telephone field of favoring the co-operative borrower along the lines followed in the rural electrification field.

What about these objections? Let us consider the matter of taxation. There can be no doubt that the tax-exempt status of co-operatives, and I am speaking of the broad co-operative movement, has been abused, and ought to be corrected because it is taking an unfair advantage of the other taxpayers.

President Kennedy in his Message to Congress earlier this year asked for some measure of federal income tax on co-operatives. But for reasons I do not understand, he specifically asked that nothing be done about the REA co-operative tax advantage. The only reason I can think of is that REA has too much political sex appeal.

This co-operative tax advantage is a serious drain on the Treasury, and is getting more so. It is not little local milk-can stuff at all. A recent book on this subject by the well-known economist Dr. Robert T. Patterson* estimates that the federal Treasury is losing $150 million a year through special exemptions granted co-operatives and co-op members who receive patronage dividend payments.

State and local governments may be losing much more. Some of the biggest trade names in business today are co-op operators: Welch's

*16 *Public Utilities Fortnightly* 601, Oct. 24, 1935.

**"*The Tax Exemption of Co-operatives*," University Publishers, Inc., of New York.

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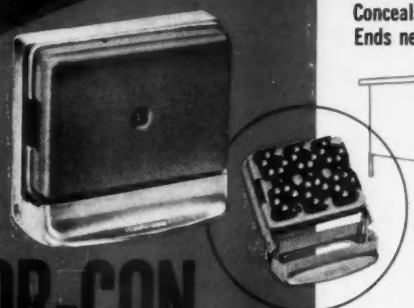

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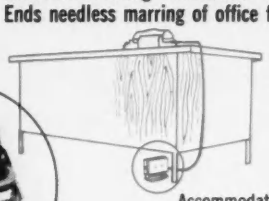

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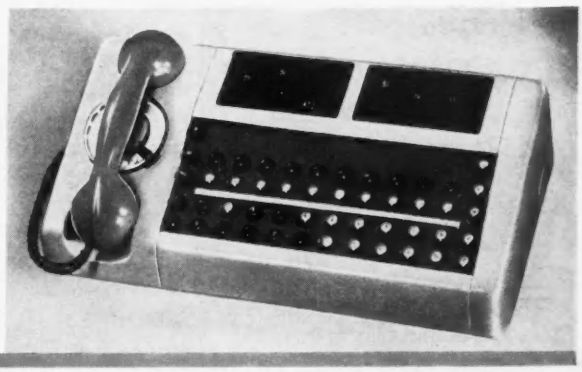

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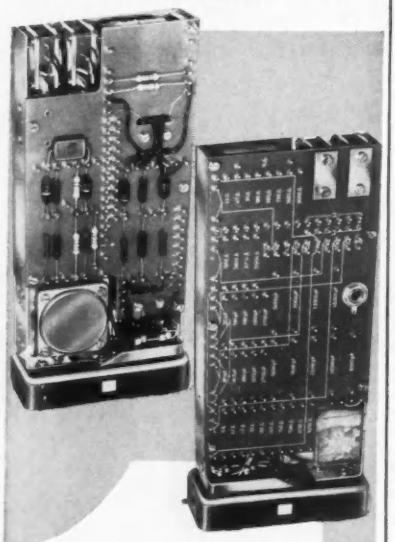

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Tax avoidance is the reason these co-operatives are in business in competition with commercial competitors and that is the *only* reason they are in business. Without the tax advantage they would not be here. They could not compete.

Danger to Tax-Paying Economy

THERE IS AN over-all danger to our tax-paying economy if this area of tax exemption is allowed to grow and expand. I am glad President Kennedy recognizes this, and I hope Congress will do something about this. But until it does, it is still a factor for REA to weigh in the granting of telephone loans.

I am not suggesting that REA turn down co-ops because they are co-ops. In some cases they are the only borrowers available. There are some good, fine co-operatives already in this field, and some of them are members of this association.

But I do submit that in the case of rival applications, where all other things are equal, the REA might well take into consideration this loss to the Treasury which would result if the tax-exempt instead of a tax-paying borrower is put into business.

After all, it is your money, it is my money, and every other taxpayers' money that keeps this thing going.

As to regulation, here is another spot where commercial utilities feel that, as in the case of taxes, the co-operative ought to play the game by the same rules as anybody else in the business. Of course, nobody likes to take medicine and it is only human that the co-operatives should try to get out from under the burden and have largely succeeded in doing so.

Finally, we have the objection about subnormal interest rates. But here again we have something that Congress, not the REA, is responsible for. Former President Eisenhower thought that the 2 per cent interest rate placed too great a burden of subsidy on other taxpayers. Congress did not agree, and President Kennedy seems to share that view.

So whatever the equities of the situation may be, as long as this cheap money rate prevails, we cannot expect any REA borrowers — whether commercial or co-operative — to turn their backs on such a bargain rate of interest. I know many of you feel that way about it too.

The situation reminds me of a statement once attributed to that grand old senator from Virginia, the late Carter Glass, when Congress was debating tariff protection to tobacco products.

The senator said: "I am a free trade Democrat and always will be. I have always thought that the Republican tariff was an invention of the devil. But I can tell you that as long as we have to have it, I am going to see that the sovereign state of Virginia gets her fair share of it!"

I mentioned a few minutes ago that the REA Act differs in the case of the telephone loans from those provisions which apply to electrification loans. As we have seen, the electrification law does provide a statutory preference for the co-operatives, among others.

When Congress passed the telephone loan amendment in 1949, it turned the preference around the other way. It provided that for one year the REA administrator should make the loans by preference to the operators of existing telephone facilities. This clearly implied a policy of preference for commercial telephone companies, because by and large they were the only ones in business in most areas.

Intent of Congress

THIS INTENT of Congress is borne out by the report of the House Committee on Agriculture, dated Mar. 9, 1949, recommending the telephone loan amendment, in which was said (page 11): "It is the hope and the expectation of the committee that most of the expansion and improvement of the rural telephone system provided for in this bill will be carried out by private industry within the framework of the private enterprise system."

Again I quote from the same page:

"Every amendment adopted by the committee is an amendment designed to protect private industry and to assist existing telephone companies in doing the job that needs to be done."

Finally, I would like to quote the chairman of that committee, Representative Harold D. Cooley of North Carolina, who stated a year later (*Public Utilities Fortnightly*, Aug. 17, 1950) that "In creating the Rural Electrification Administration and in providing funds therefore, it was never contemplated by Congress that either the power and authority granted, or the funds made available, should be used to throttle, cripple, or control the efforts of private enterprise, or to duplicate the existing facilities in communities which are now being adequately served by private industry."

We must realize, of course, that a new administration has taken over at the REA and at the Agriculture Department. We must assume they are trying to do their best and that if they make mistakes, they are not intentional. One of the biggest mistakes it could make would be to consider REA policies apart from the over-all problem which faces the Agriculture Department.

REA faces the same built-in contradictions in administering these loan programs as the Agriculture Department in administering other forms of farm aid. It is the problem of increasing productivity and increasing surplus under pressure of federal benefits. It has plagued every Secretary of Agriculture since Arthur Hyde under Herbert Hoover.

A recent book* on the career of Claude R. Wickard, Secretary of Agriculture under the late Franklin D. Roosevelt and REA Administrator under President Truman, shows this constant struggle which might be summed up in the title of the old song: "How are you going to keep them down on the farm?"

Can anybody justify the over-all logic of the Interior Department, spending millions to bring new acre-

*"*Roosevelt's Farmer*," by Dean Albertson, Columbia University Press of New York.

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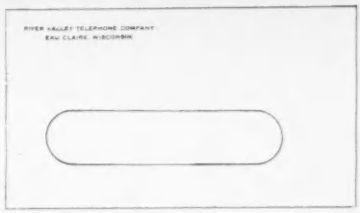

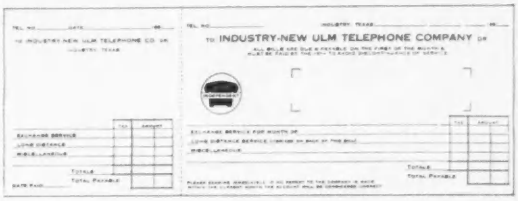

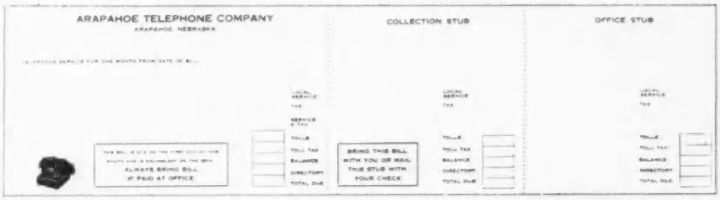

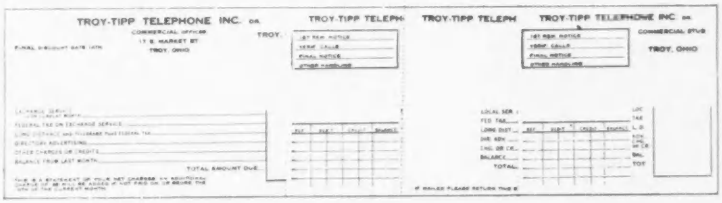

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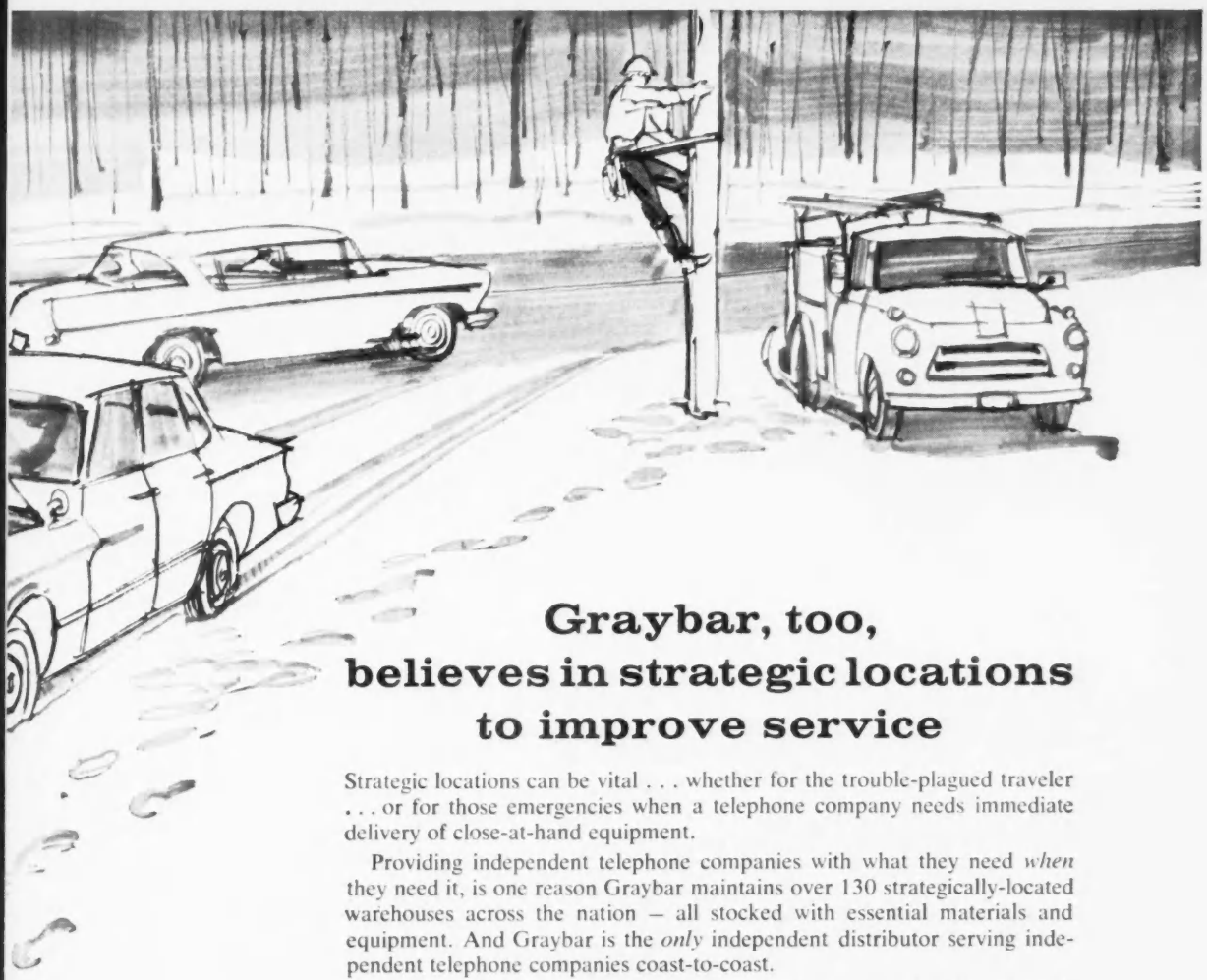

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age into production through reclamation projects while the Agriculture Department spends millions to take existing acreage out of production?

Former Secretary of Agriculture Benson, under Eisenhower, certainly did not solve it. And the nine months' experience under present Agriculture Secretary Freeman is not reassuring, when we consider farmers this year are getting almost as much money for not producing corn as they are guaranteed for growing it.

*Last winter Secretary Freeman said the program would cost from $400 to $500 million. Now, it is apparent to all that it will cost at least $700 million.

The fact is, the farmers are too smart for the Agriculture Department. They are producing more corn on less acreage and still the number of farms continues to decline!

We hear suggestions that REA get into new and different programs, such as the recent proposal of Senator Carroll (Democrat, Colorado) that it go into the salt sea-water conversion program. Maybe that would be a good thing for REA to do. But there again it would mean bringing more acreage into production when we already have too much.

It is against the back drop of these built-in contradictions that the wisest and least risky course in administering the REA rural telephone program would clearly be to follow the sensible policy of continuing to make these loans to commercial companies, where all other things are equal.

Under this policy, we have seen the number of farm phones climb from less than 40 to more than 65 per cent in one decade and with a good chance of finishing the job in another decade. What is wrong with that rate of progress?

Additional Return for Taxpayer

IN THAT WAY the taxpayer stands to get some additional return, because these commerce companies will pay their full share of taxes on in-

*Under the present program farmers are receiving $1 a bushel for corn not planted and $1.20 a bushel guaranteed for corn produced.

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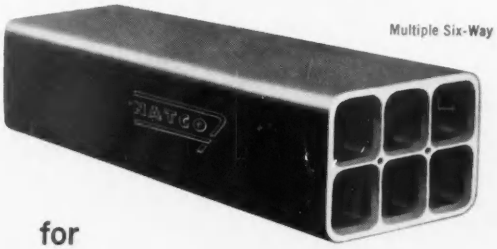

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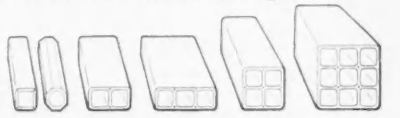

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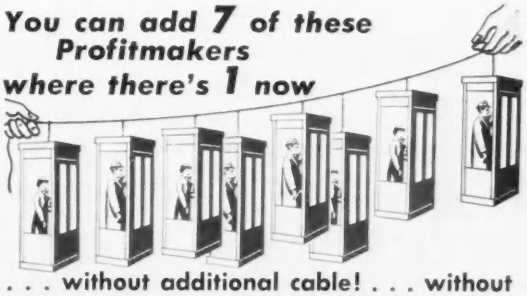

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PRICE $14.50 — Dial Blank; or with Dial, Less Ringer (install your cycle)
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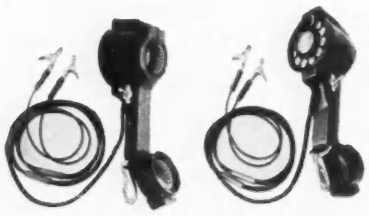

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W. E. 354 WALL and W. E. 302 DESK TELEPHONES

Self-contained Sets with the appearance and operation of a new unit, equipped with Straight Line Ringer, or most Cycles can be supplied.
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LATE COMPACT MAGNETO TELEPHONES
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come. I realize that a good deal of pressure is being brought from various sources to bear on the REA administration to change the format followed by Wickard, by Nelsen, and by Hamil, and to deal more or less exclusively with the co-operatives.

I have even read articles in left-wing publications that this would make a good impression abroad, where co-operatives are an almost universal vehicle of business. This is supposed to help our image in Africa or Scandinavia, or other places where old-fashioned business for profit has become some kind of a dirty word.

I can tell you this much. If this administration or any other administration sets out on a course of disturbing our basic private enterprise pattern, one which has brought forth on this continent the greatest and most satisfactory telephone service in all the world, they will have something serious to answer for.

Private Enterprise System Must Be Maintained

WHEN WE compare private company telephone service in the United States, which contains only a tiny fraction of the land area and population of the world, and realize that 56 per cent of the world's telephones operate in the US — when we compare this with the record of government telephone monopolies abroad, or through any other basis of comparison, I say we have got here in the United States the best there is.

And I say that any deliberate effort to change this would surely be monkeying with the buzz saw. I say it is the duty of the telephone companies functioning through this excellent United States Independent Telephone Association to see that this private enterprise system is maintained, and to make the appropriate representations to Congress, if necessary, if any attempts are made, however well intended, to change or wreck this winning combination — the American telephone industry.

Mr. Welch presented this paper at USITA's 1961 *REA Borrowers Conference.*

"Settlements"

(Concluded from page 54)

communicationswise. This means meeting service requirements that have been nonexistent.

In addition to our historic basic services, we now furnish Wide Area Telephone Service; we soon will furnish automatically switched Teletypewriter Service; and in the not too distant future we will add Wide Area Data Service.

It has been estimated that by the end of this year, 6,000 installations of various types of devices and machines will be transmitting business data over telephone circuits, in contrast to about 1,200 a year ago. Of even greater significance is the estimate that the number will reach about 100,000 by 1965.

These changes stem from the fact that the businessman is confronted with two major communications problems. One is the need for more speed and the other is the growing burden of paper work. We are helping them solve these problems.

Add to these requirements other services such as facsimile transmission, telewriting, and closed circuit TV — that only a few years ago were to us something out of science fiction.

The term "telephone business" is obsolete. A far broader concept of communications has developed in the past few years, and competition is becoming ever keener.

Today, and much more so tomorrow, our business is and will be built around our ability to get the right information to the right place at the right time.

"What's Ahead in Settlements in Interchanged Business" is a vast broadening in the types of services provided and rapid growth in the quantities of service furnished — with settlements becoming increasingly important and requiring our ever-vigilant attention if such business is to contribute its proper share of the revenues so essential to the financial health of our companies.

Mr. Jarmon presented this paper at the first general session of USITA's 1961 *Convention.*

PUREGAS PRESSURIZATION SCORES A *New High*

...at High Point Exchange of North State Telephone Co.

High Point, North Carolina is one place where "high" does not necessarily mean "dry". With severe summer storms drenching the area in driving downpours, engineers and maintenance crews of the North State Telephone Company faced the tough problem of "wets" and lightning-caused failures. These heavy showers often caused as many as 15 to 20 separate disruptions along the some 275-odd miles of underground and aerial cable belonging to the High Point Exchange.

Three months after installing Puregas refrigerator-compressor pressurization equipment, North State engineers report.... **"service affecting troubles have been greatly reduced. We now average only about one or two troubles—sometimes none... Roughly 75 to 80 percent of our cable troubles due to moisture and water have been eliminated... even now the pressurization system has almost paid for itself from a maintenance and protection standpoint."**

For full details on how Puregas pressurization equipment is now effecting up to 85% service improvement in more than 6,000 exchanges around the world, send for the complete Puregas catalog.

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8-WAY EXPANDING ANCHOR
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Install in vertical machine bored holes. Costs much less than "dead-man"—holds more.

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"Washington Observations"

(Concluded from page 30)

Marshall and McNeely, the commission was urged by Western Union to view as a whole the Telpak and wire area telephone and data service offerings "to provide a clear understanding of the pattern of monopolistic action they represent."

AT&T's president advised "It seems very clear that Western Union expects to be actively competitive, not only in the services which it has historically rendered, but in many new services including voice, combined voice and record, and bulk communications."

After the FCC's special meeting on the questions presented, leading to establishment of the *en banc* hearing on Telpak, the Marshall and McNeely letters were put into the dockets on the FCC cases on Telpak, WATS, and developmental line switched teletypewriter service (forerunner to WADS).

Procedures Won't Suffice

MARSHALL SAID "I submit the situation is so grave, and the potential damage so serious, that the mere utilization of existing procedures for the orderly disposition of questions which arise from the filing of tariffs will not suffice.

"If the commission should now do nothing other than to follow the statutory procedures prescribed for the determination of the lawfulness of individual tariffs, then the very passage of time inherent in arriving at such determinations will have brought about an accomplished fact — a virtually complete telecommunications monopoly by the telephone company — before the commission has had sufficient time to adjudicate the serious issues involved."

McNeely emphasized "If we had failed to make these offerings, we would not have met our responsibilities to the public, our employes, and shareowners. Moreover, we can assure you that these offerings were not made for the purpose of embarrassing Western Union. They were made in discharge of our obligation to provide communications services to meet evolving public needs [so] as to make available to users of these services the benefits of advances in the communications art.

"We believe these service offerings are in the public interest. We also believe that Western Union has an obligation to the public similar to ours. Western Union has recognized this obligation in undertaking a program for substantial expansion and improvement of its plant and is entering into negotiations with us for modernizing the contracts for intercarrier leasing of facilities . . . "

Marshall commented in his letter "Expedition of these proceedings — essential though that be — will not alone be sufficient . . . In a comparable but far less serious situation, involving the multiple channel tariffs filed by the telephone company, the commission brought about a series of meetings between the two companies which resulted in measures designed to keep the competitive balance more nearly equitable, while the issues were being resolved . . .

"Such an approach is required, for despite the progress made in connection with the renegotiation of the facilities interexchange contracts between Western Union and the telephone company, about which the commission has been informed, Western Union still will not be in a position to offer services fully competitive to those offered by the telephone company."

McNeely took the position "It is essential that the common carriers meet the developing needs of the communications-using public. Since Western Union is one of the competing common carriers, new telephone company service offerings which afford the users the traditional benefits of competition — improvements in service accompanied by reductions in price — necessarily have an impact on Western Union. But we know of no reason why Western Union cannot develop and provide service which will maintain its competitive position . . . "

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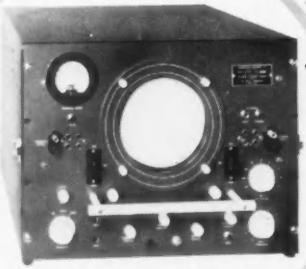
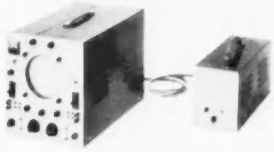


TMS-0100

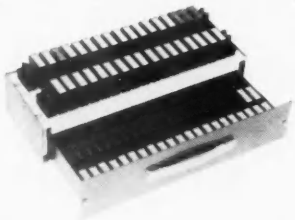
The TMS-0100 Swept-Band Transmission Measuring Set

TMS-0101



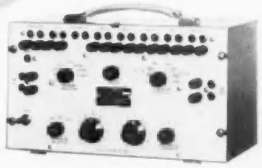
TMS-0101, Field Unit with Separate Power Supply for Easier Portability

TLA-0100



TLA-0100 Artificial Line shown with Storage Drawer open and Plug-In Modules in place

THS-0100



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Hallamore designed **Swept-Band Transmission Measuring Set, Artificial Line,** and **Test Hybrid,** provide all the equipment any telephone company needs for fast, accurate, reliable, and economic voice-band circuit checkout to satisfy the most demanding conditions. Unprecedented requirements for good voice transmission circuits created by Direct Distance Dialing, and other modern communication developments, are more readily handled with the use of any one, or a combination, of the apparatus herein described.

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It is **FAST,** having the proven capability of checking circuits at a rate at least 14 times faster than conventional methods, with complete **ACCURACY** (direct readings eliminate incidence of error), **RELIABILITY** (thoroughly field tested and used by telephone companies and the military for several years), and **ECONOMY** (the TMS performs the work of many instruments, at a labor-saving pace, with many plant, training, engineering applications).

For **PLANT DEPARTMENT** the **TMS** makes it relatively simple to maintain maximum quality control in cable and circuit acceptance testing, as well as initial adjustment of central office equipment.

For **ENGINEERING DEPARTMENT.** In the engineering of outside plant facilities, it is possible to build a circuit artificially on the Hallamore Artificial Line, and examine its transmission characteristics on the Transmission Measuring Set. It is possible to ascertain definitely, in advance, the attenuation, return loss, and impedance characteristics of contemplated circuits.

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The **TLA-0100 ARTIFICIAL LINE** enables the simulation of circuit characteristics existing in outside plant. Through specific design, maximum flexibility is obtained with respect to load distribution, cable characteristics, and termination. By means of plug-in modules containing various lengths of line section and load types, commonly used loading schemes (B88, D88, H88, M88) may be applied to any one or a combination of six types of cable. Load spacing and end sections may be adjusted in increments of 150 feet.

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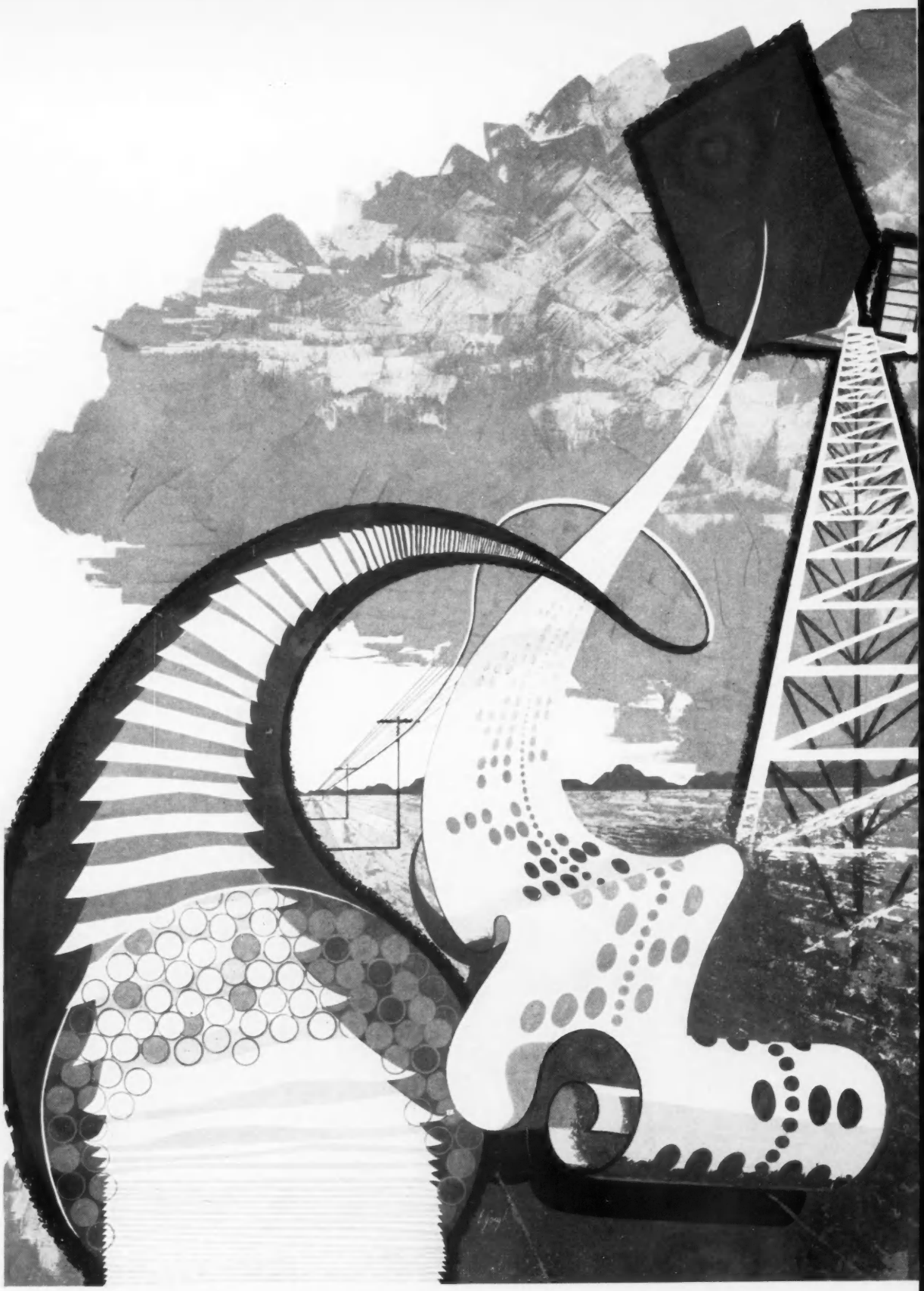

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Today, the revolution in communications has caught the imagination of America's business management. At the same time, it has created dramatic new opportunities for the telephone industry.

With the forecast that in 10 years the traffic in business data will exceed all telephone conversations, a distinct area for new business presents itself to telephone companies.

As a leading specialist in carrier and microwave systems, Lenkurt Electric is launching a program calling business management's attention to the vast potentials of *automation through communications.* In addition, Lenkurt Electric is ready to supply the systems for data transmission, supervision and control and thus convert opportunity into profitable reality.

It will pay you to explore the possibilities of increasing revenue by providing business and industry with this *total* communications service. A letter or phone call to your regional office will bring quick results.

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"Rural Telephones"

(Continued from page 58)

due the government under the rural telephone loans program.

The most recent new borrower to get an REA telephone loan is a small Independent company in Kansas.

Let's be frank about it. Let's be honest with each other.

Participation in the commercial companies has been invaluable in bringing us all along the road toward better, wider area-coverage rural telephone service. It has been good for the REA program.

REA Good for Industry

IT CAN ALSO BE SAID by any observer who knew the industry 10 years ago and can compare its health today, that the REA program has been good for the industry, particularly the so-called Independent segment most of you represent.

But then there are those who will say this is all in the past. "What is going to be your attitude," someone will ask, "toward the commercial companies in the future?"

My answer is: "Look at the record."

Since January 20, when the present administration assumed responsibility in Washington, REA has made 157 telephone loans, totaling $76,800,000. Of this total, 103 loans, amounting to $56,100,000 went to applying Independent telephone companies. Of 27 new borrowers during these 8 months, 25 are commercial companies.

One of these new Independent borrowers, the Westco Telephone Company of Weaverville, N. C., received one of the largest single loans in the history of the telephone programs: $6,198,000.

But more than that, REA worked with Westco's parent company in establishing Westco for the specific purpose of making area coverage telephone service available to a large section of western North Carolina.

I have not quoted these facts and figures in any attempt to demonstrate favoritism for or against any small group of borrowers. The bulk of the service territory in the small towns and rural areas of our country is already assigned by state regulatory bodies to Independent telephone companies.

What I am pointing out is that the telephone industry, in contrast to the electric industry, is working *with* REA to provide better service to rural people.

What I am emphasizing is that we are going to continue to count on you to carry a heavy share of the responsibility for putting telephones on the farms, in rural homes, and in the commercial establishments scattered across the countryside.

Rural Telephony Needs Independents

THE RURAL TELEPHONE program needs you and the other Independents. It needs the cooperation of the Bell companies, too, because much of the rural areas adjacent to large urban centers is assigned to the Bell companies as their responsibility.

And the program needs the nonprofit, subscriber-owned cooperatives. They will have to play an increasingly important role in rural telephony, as the program shifts its focus more to areas of lower population density, where the possibility of attractive profits thins out.

The cooperative organization is an important and essential device for permitting people to provide their own telephone service *where they find it necessary to do so* and are willing to undertake the responsibility of doing it.

Our purpose and intent is clear. There is no need for theoretical debates in the corridors of doctrinaire statements about whether the new REA administrator favors cooperatives or whether he favors commercial companies.

NORMAN M. CLAPP, author of this article and administrator of Rural Electrification Administration, Washington, D.C.

The REA administrator favors whoever is best able and willing — in each given situation — to improve and expand telephone service in rural areas on an area coverage basis with reasonable protection for the public interest.

The real question for you then becomes: Are you willing and best able to do the job? If the answer is Yes, then we are eager to sit down with you and help you work out a feasible proposal for REA financing and loan-supporting technical assistance.

Although I regard it as pointless to dwell on whatever rivalries may exist between the cooperatives and the commercial companies, let me add one thought: In the last analysis the demand for cooperatives in this program will be largely determined by whether or not the commercial companies are willing to do a good job of area service.

This is already apparent in the contrasting history of REA rural electrification and REA rural telephony. It will continue to be true in the work ahead. If the commercial companies go on from here doing an effective job in making modern service available to all rural people with reasonable speed at reasonable rates and with due regard to their public service responsibilities, you need have no fear of your place in the program.

But if you fail to do the job, there are bound to be growing pressures on you, on REA, on the state regulatory bodies to let someone at it who will.

Survey the Frontiers

LET US SURVEY together the present frontiers of rural telephony. We started our survey at REA immediately after I became administrator this spring. We put together a fact-finding committee in REA to make a complete study and reappraisal of the telephone program to see what progress as well as what mistakes we had made, and where we go from here.

I have already mentioned the progress we have made in rural area coverage. It is all the more notable, because it came after two decades of backsliding in rural service during which obsolescence and abandonment of telephone plant exceeded new service in a great many areas.

Despite evidence of general progress, the 1959 census reported that

in each of 462 counties there were still 500 to 1,000 farms without telephones. There were 233 counties with 1,000 to 2,000 farms without service, and there were 45 counties with more than 2,000 farms without telephone service.

To find whether our borrowers were just paying lip service to the area coverage idea or were really reaching for the people out beyond the base rate areas, our staff surveyed 130 borrowers in five states. We got an 81 per cent return on the questionnaires.

Results of the survey make it clear that borrowers still have a large job to do in their service territories: 53 per cent of the total number of establishments outside the base rate area still do not have service.

The survey shows that almost two-thirds of the unserved establishments outside the base rate area are *adjacent* to existing facilities. These could be connected at a relatively small cost and their addition to the number served would result in substantial improvement in borrower revenues. About one-third of unserved rural establishments outside of base rate areas are reported beyond existing facilities.

Difference in Willingness To Extend Service

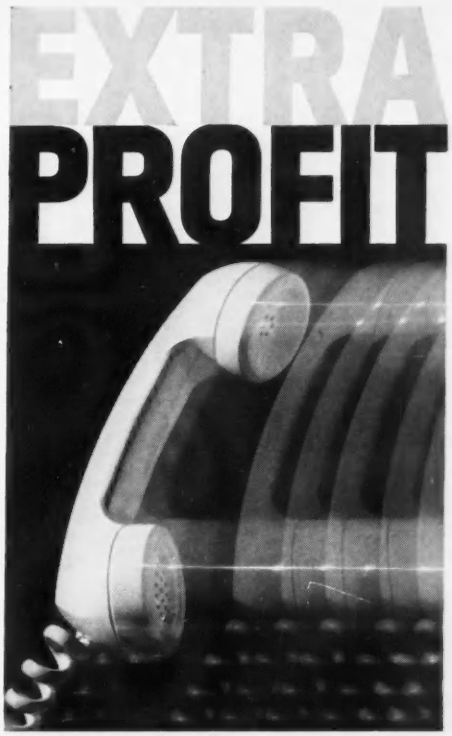
THE STUDY indicated a substantial difference in the willingness of cooperative and commercial borrowers to extend service beyond existing facilities without additional construction charges to the subscriber.

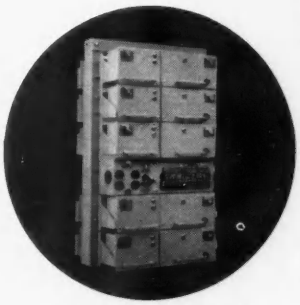
The questionnaires reveal that REA-financed telephone cooperatives would be willing to extend service to about 92 per cent of the unserved establishments in their areas beyond present lines without additional construction charges. REA-financed commercial telephone companies reported they were willing to extend service under these conditions to about 45 per cent without additional construction charges.

This survey is only a sample. We tried to make it as representative of the entire program as we knew how. It may or may not fairly state the general position of commercial companies. I cite it to urge the need for some serious soul-searching in the industry on its future intentions on area coverage.

In assessing the future role of the commercial companies — perhaps your own company — in the rural field of this industry, you

Next page, please





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YOUR HEADQUARTERS FOR BUSINESS AND PLEASURE

should face up to other facts our study revealed.

First, it is the cooperative organizations which have moved in to serve the thinner rural areas. Statistics on subscriber density per mile of line best illustrate this. Our cooperative borrowers have an average of 2.55 subscribers per mile of line constructed. Our commercial borrowers average 5.05 subscribers per mile.

Second, a study of a broad cross-section of our borrowers indicates that those which are cooperatively organized require total revenues averaging somewhere between 12.5 and 14.3 per cent of plant investment, compared with an average somewhere between 16.6 and 19.4 per cent for commercial borrowers.

I mention these facts not to make any disparaging comparisons, but as food for thought in shaping our future efforts to finish the job we have undertaken.

Low-Cost, Long-Term REA Financing

THEY POINT to the continued need for low-cost, long-term REA financing, for constant improvement in management operations, the need for eliminating speculative practices where they exist, the need for further pioneering in system improvements and economies.

The more efficient your systems operate, the easier it will be for you to reach out and meet your area coverage responsibilities and still make a reasonable return.

In the field of operations, REA and its borrowers have pioneered the way to economies and improvements in a decade which has seen the whole character of the Independent industry change — from thousands of small, obsolete, marginal operations, to a smaller number of consolidated, modern, successful enterprises.

From operating data which borrowers report to REA, we prepare an analysis each year of how successfully REA financing is being used to improve and expand rural telephone service. We have just completed the compilation of borrowers' operations during 1960.

The most significant figures in this annual report are those which show a continuing reduction of deficit operations, a strong trend toward satisfactory margins.

Of the 685 telephone borrowers reporting to REA on their 1960 operations, 182 showed deficits on an accrual basis. This compares with 224 deficit operations in 1959, and 255 in 1958.

In terms of the percentage of REA telephone borrowers operating in the red, there was a drop from 44 per cent in 1958 to 35 per cent in 1959 to 26 per cent in 1960.

Increase Over 1959 Revenue

FOR ALL REPORTING borrowers across the nation, the median revenue received per subscriber — for local service, toll, and miscellaneous — is about $75 per year, or $6.50 per month. This is a marked increase over the 1959 revenue figure of $69 per year, or $5.75 per month.

While expenses also went up, they did not go up as fast as revenues. The median operating margin climbed from $10.05 for 1959 to $12.66 for 1960. Median net income per subscriber jumped from $2.56 for 1959 to $4.28 for 1960.

The improvement is most important, when it is related to the challenge of area coverage which borrowers have undertaken. Improved margins offer borrowers the opportunity to push area coverage a little farther and a little faster.

REA has worked with you and and with the manufacturers in many of the important developments in the design of rural telephone systems, and we will continue to do so.

REA encourages these advances and will help you take advantage of them as they become available and feasible for rural electrification. Any development that promises savings or better service is in line with the objectives of the rural telephone program which REA administers.

Moving Toward Area Coverage

THE TELEPHONE INDUSTRY in general has made great strides in the past 11 years. Rural telephony in particular has made notable progress. We are moving toward the area-coverage objective of the program Congress set up when it expanded the Rural Electrification Act to include rural telephone service. There still remains much to be done by all of us.

To you who have already contributed to the progress of this program, I express the thanks of REA and the rural people you serve. To you who could but have not yet joined in this program, I extend a cordial but urgent invitation to help us accomplish our mutual task. From all, in and out of the industry, I hope we will have understanding, support and cooperation.

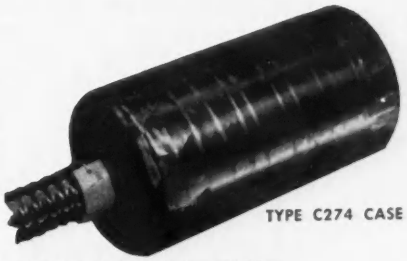
Mr. Clapp presented this paper at USITA's 1961 *REA Borrowers Conference.*

CEECO

CEECO TYPE C274
GALVANIZED STEEL CASE ASSEMBLIES
FOR DIRECT EARTH BURIAL INSTALLATION.
CONTAINING FOUR TO FOUR HUNDRED SIXTY COILS.

These assemblies can be equipped with loading coils, capacitors, inductors and MF units.

NOTE: These assemblies are completely covered with plastic tape to protect all metal from electrolysis and other soil corrosive agents.



TYPE C274 CASE

- LEAD STUB ASSEMBLIES ARE PRESSURIZED.
- PLASTIC STUB ASSEMBLIES ARE SEALED IN THERMOPLASTIC COMPOUND TO INSURE PROTECTION FROM MOISTURE.

Write us for assistance on your loading problems.

CEECO assemblies are sold by your telephone equipment supplier.

COMMUNICATION EQUIPMENT & ENGINEERING CO.

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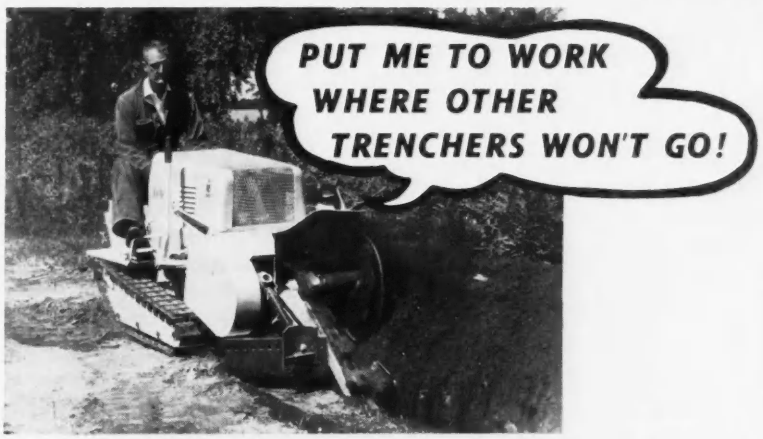


DAVIS T-66 ***has positive traction and maximum flotation...*** Ground-gripping positive traction with no rubber-tire bounce . . . high flotation — only 3.6 psi . . . ability to cross trenches . . . and compact design with only 37″ width put the Davis T-66 on jobs where other trenchers can't operate. All of these features, plus the T-66's high digging performance make it a real money maker for trenches from 16″ wide, 24″ deep to 4″ wide, 66″ deep. It will even dig flush alongside walls, fences, etc. It gives added versatility with its own backfill blade, horizontal earth borer and numerous other attachments. It's the most maneuverable trencher in the field with each track independently driven and with Instant Forward/Reverse. Operates with horsepower — not manpower! Take a look for yourself and compare. Write for descriptive literature . . .

DAVIS MFG. INC. 1514 S. McLEAN BLVD., WICHITA 13, KANSAS

T6-1-1061

New Products' Showcase

SUPPLIES and EQUIPMENT

By DICK REYNOLDS

Speakerphone

A NEW loud-speaking telephone has been introduced by Automatic Electric. The new phone, called the Speakerphone — Executive Model — combines improved transmission with a new design.

"Partial gain-switching" of the circuits has been incorporated to reduce the possibility of microphone-speaker feedback. With "partial gain-switching," the circuits are arranged so that the microphone is automatically muted, but not completely cut off, when the speaker circuit is activated. Conversely, speaker volume is reduced when the microphone is in use. This technique curtails echo and resulting "rain-barrel" sound, to provide clear voice transmission.

The microphone, housed in the base, is a sensitive, wide-angle instrument. It will pick up conversation from anywhere in a normal size room, giving the caller new freedom of movement. Conference calls can be made with everybody in the room seated comfortably, not huddled around the telephone. *Check NP*658.

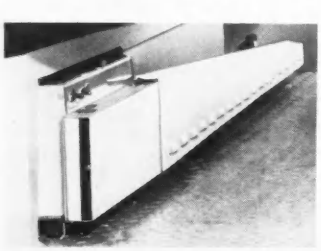
New Speakerphone from Automatic Electric.

Crew Cab Heater

A CREW Cab Heater which installs beneath the seat of standard crew cab bodies is now in production at the Morrison-Pelsue Company.

The MoPeCo Model CC Heater provides clean, heated fresh air in any enclosed cab and is completely safe for personnel. Heat is thermostatically controlled. A standard propane gas bottle furnishes economical fuel permitting the heater to operate when vehicle is stopped, thus saving gasoline and engine wear.

As a safety feature, all gas immediately cuts off to the heater in case of battery failure or power shut-off. All products of combustion are exhausted through the vehicle floor, safely away from personnel. Only safe heated fresh air is forced into the cab area. *Check NP*659.



Bottle Warmer

A NEW attachment to prevent bottles from frosting on the job also has been developed by the Morrison-Pelsue Company.

The MoPeCo Bottle Warmer maintains the gas pressure in LP gas bottles and enables propane operated equipment to work efficiently in cold weather, yet requires only 100 watts of 115 volt AC or DC electric current. It attaches around the bottom of standard 12" LP gas bottles with chain and spring. GE calrod element furnishes sufficient heat to prevent frost from forming.

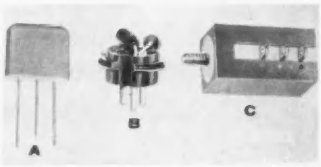
A 10' cord plugs into the genera-

tor receptable on MoPeCo Ventilating Heaters, thus eliminating the need for auxiliary equipment. *Check NP660.*

Miniature Voltage Doublers

A NEW line of miniature voltage doublers in three basic configurations and dimensions, and ranging from 50 volts PVI to 1,500 volts PIV at a current rating of 1.1 amps, is now available from Solitron Devices, Inc.

The Series DB (*Figure A*) is 5/8" x 3/8" x 1/4". This unit is in a molded insulated package with pure silver leads spaced .2" apart for printed circuit applications.

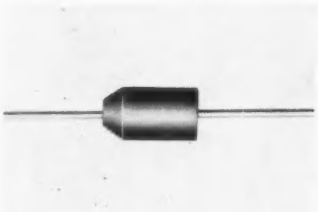


The Series SC polarized plug-in type (*Figure B*) has a 3/4" diameter.

Series MB (*Figure C*) is 1-1/4" x 5/8" x 5/8". This unit comes in molded blocks with mounting studs, and is manufactured to meet all MIL specs. *Check NP661.*

Silicon Rectifiers

A LINE of hermetically-sealed, double-diffused silicon rectifiers in a molded package, offering 800, 1,000 and 1,200 volts at 1.1 amps, is also available from Solitron Devices, Inc.

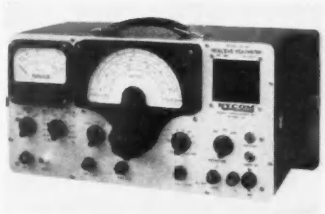


Three series of these rectifiers are produced: medium and high voltage available to 1,200 volts PIV to 1,100 mA average rectified current; 1,000 volts PIV at 1,100 mA average; and 800 volts PIV to 1,100 mA average. Besides the standard line of these rectifiers, Solitron offers to fabricate custom designed units in production quantities. *Check NP 662.*

New Voltmeter

RYCOM Instruments has announced the release of its newest Frequency Selective Voltmeter — Model 2173A.

The new unit employs the heterodyne principle with balanced modulation. It offers an accurate means of making amplitude measurements throughout the frequency spectrum of 3.0 kilocycles to 2.0 megacycles. This instrument uses highly selective crystal filters to achieve the resolution necessary for amplitude measurements of microwave subcarrier, wire line communications, and subcarrier telemetering systems. Unit is available with narrow crystal filter (250 cycle) for amplitude measurements, and a wide crystal filter (2800 cycle) with demodulator for monitoring single side band speech or tone signals.

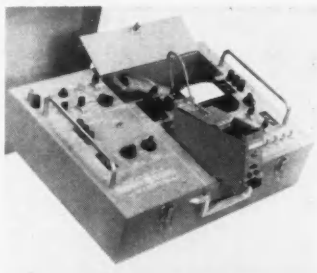


Unit is supplied in a portable carrying case with a cover compartment for storing test leads or associated tools. *Check NP663.*

Repeater Test Set

THE AT-6 Repeater Test & Installers Set offered by Automatic Electric, is a portable, self-contained unit, about the size of a suitcase (20-13/16" x 15-21/32" x 7"). The aluminum-case set weighs 27 pounds and has its own carrying handle and cord storage compartment.

The set has a built-in signal source (oscillator) and detector (voltmeter); the installer need carry only this one piece of gear to the repeater shelf. With a repeater plugged into the test set, 48-volt power can be taken directly from the shelf jack. The set will test series or shunt sections separately or any existing AT-2 series or AT-3 shunt units. It can also measure return loss of the line. *Check NP664.*



Multi-Faced Hammer

A NEW multi-faced hammer is now being introduced by Ramset. Replaceable tips allow one tool to do the work of many, from sledge power to precision sensitivity.

The Shure-Drive is five hammers in one since it can be fitted with five interchangeable and replaceable tips of varying degrees of hardness. The five tips, each colored to conform with Federal specifications of durometer hardness, are scientifically compounded of plastic and are secured in steel collars.

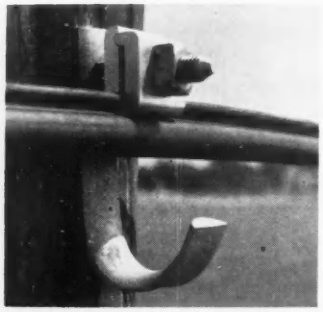
The five tips, and their degree of hardness, are: soft (green); medium (white); hard (black); extra hard (yellow), and rawhide. All tips fit one basic holder. Although firmly locked to the holder, a tip may be loosened with a quick twist. If a tip should become worn through prolonged use, it may be removed from its steel collar and replaced. *Check NP665.*

Pole Bracket

A NEW pole bracket for supporting integrated messenger cable has

been developed by the A. B. Chance Co. The bracket consists of a pulling-in-hook and an extruded aluminum clamp that can be fastened to the pole with a single through bolt.

In installing, the cable is placed in the hooks supporting the weight and



then the lineman lifts the cable up to the clamp and tightens it securely. The smooth finish of the clamp grips the messenger securely but will not cut through the plastic jacket. *Check NP*666.

Utility Trencher

A NEW trencher, the Davis W-36, has been introduced by Davis Mfg. Inc.

The unit trenches from 6-inches

to 3-inches wide to a maximum depth of 36-inches deep and will operate at speeds up to 500 feet per hour. It has a built-in protective torque limiter that disengages when a shock load is encountered, then re-engages immediately to continue digging.

Another feature of the trencher is its self-transporting drive. By pulling a lever, a friction wheel engages the rear tire and the machine moves to a new trenching site or to its carrier at speeds up to 4.5 mph. *Check NP*667.

Corvair Pickups

CHEVROLET's Corvair truck line has been expanded to 198 models, ranging from light-duty Corvair 95 pickups to big tandem-axle units.

A four-cylinder medium-duty diesel and two larger, more powerful

V8's in medium- and heavy-duty models are offered for the first time. A larger six-cylinder 150 hp. engine is newly optional on all light-duty models with manual transmissions (except forward control). Independent front suspension with torsion bar springing is continued for 1962 with refinements. New optional equipment includes alternating current generators, tinted glass, and a dealer-installed sliding rear cab window for increased ventilation. *NP*668.

Diesel Trucks

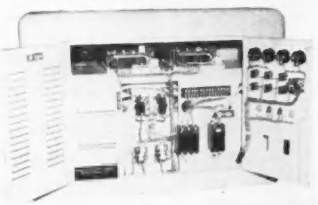
ENTRY into the diesel field with 15 medium-duty models and introduction of two larger displacement V8 gasoline engines are also features of the 1962 Chevrolet truck line.

Other improvements include lower hood lines for better road visibility, direction signals as standard equipment and single headlamps.

Diesel power is supplied by a 130 hp., 212 cu. in. GM two-cycle in-line four-cylinder engine. Also new to the line are 327 and 409 cu. in. gasoline V8's developing 185 and 252 hp. Independent front suspension, introduced two years ago, is continued with refinements. A 261 cu. in. six is newly optional on all light-duty models with manual transmissions, except forward control uni's. Optional equipment includes alternating current generators, tinted glass, and a dealer-installed sliding rear cab window for improved ventilation. *Check NP* 669.

Movable Motor-Generator

A NEW motor-generator set, which can supply both 120/208 volt, 400 cycle alternating current and 20 to



30 volt direct current at the same time, has been announced by Kato Engineering Co.

Input is provided by a 20 H.P., 550 volts A.C., 3 phase, 60 cycles, 1714 RPM, squirrel cage type induction motor. *Check NP*670.

NEW PRODUCTS' DEPARTMENT **11-15-61**

Telephone Engineer Publishing Corporation
7720 North Sheridan Road, Chicago 26, Illinois
ATTN: Dick Reynolds

Please send me additional information concerning the following New Products.

NP 658..... NP 659..... NP 660..... NP 661..... NP 662..... NP 663.....
NP 664..... NP 665..... NP 666..... NP 667..... NP 668..... NP 669.....
NP 670.....

NAME ..... POSITION.....

COMPANY .....

ADDRESS .....

CITY ..... ZONE..... STATE .....

I am a subscriber to TE&M ☐ Yes ☐ No (check one)

VOSS

HOIT

THOMPSON

STRASSNER

DOBBIN

PRITCHARD

Gen. Dynamics Div. Pres. Names Five New V.P.'s

FIVE MEN with a total of 160 years of service in the telephone industry have been named vice presidents of General Dynamics | Telecommunication, Rochester, N.Y., John H. Voss, president, announced as he named his executive committee.

General Dynamics | Telecommunication was created in August as a division of General Dynamics Corp. and is manufacturer of Stromberg-Carlson telephone equipment. The new vice presidents, all of whom have long service with the division, are: Gordon G. Hoit, senior vice president and consultant to the president; T. C. Thompson, vice president — sales; Howard G. Strassner, vice president — manufacturing; Robert R. Dobbin, vice president — engineering; and Charles W. Pritchard, vice president — sales financing.

All had held key positions in the former Telecommunication Division of General Dynamics | Electronics before the formation of General Dynamics | Telecommunication in August and earlier Stromberg-Carlson.

Others whom Voss named to his executive committee, which will direct the division's operations, are: Arthur J. Fink, assistant to the president; Robert L. O'Connor, controller; Frederic W. Haupt, director of public relations and advertising; Walter E. Black, director of industrial relations; Charles F. Cheney, director of plans and programs; and John E. Garner, director of special projects for the military.

The five new vice presidents have all participated in the four phases of telephone communication — magneto, common battery, dial and electronic switching.

When they first joined Stromberg-Carlson, later merged with General Dynamics, the magneto telephone which required batteries in the user's home was still prevalent in many sections of the country. Common battery power had come into use in some areas and was making steady inroads on magneto.

Gordon G. Hoit joined Stromberg-Carlson as a factory clerk in 1926. He served in the Cost Department, advancing to department head. Later he became chief accountant, assistant treasurer, controller, vice president — finance and senior vice president.

Hoit is active in the American Management Association, served as vice president of the Finance Division from 1954 to 1956, and is currently a member of the Planning Council of the General Management Division. He also is a member of the Controllers Institute of America, the American Society of Naval Engineers, and the National Association of Accountants, and served as president of the Rochester Chapter of the latter organization in 1942-43.

T. C. Thompson will direct the division's marketing operation. In 1919 he first worked in the telephone industry with Illinois Bell Telephone Co. He joined Stromberg-Carlson in 1924 as an installer, later becoming sales representative in Ohio, Nebraska and Texas. He was Pacific Coast Branch manager in 1942 and became general sales manager of the Telecommunication Division in 1945.

Thompson is active in the U.S. Independent Telephone Association and the Telephone Pioneers of America. He also is a member of the American Management Association.

Howard G. Strassner has worked his entire career for Stromberg-Carlson and General Dynamics. He joined the division in 1921 in the Shipping Department, and after five years became a group leader in the wire stockroom where he remained until 1930, becoming order clerk.

In 1941 he was advanced to chief of the Order Department. He progressed through material control and became manager of production control for the Telecommunication Division in 1944. In 1949 he was appointed production manager, and in 1958 was named manager of manufacturing.

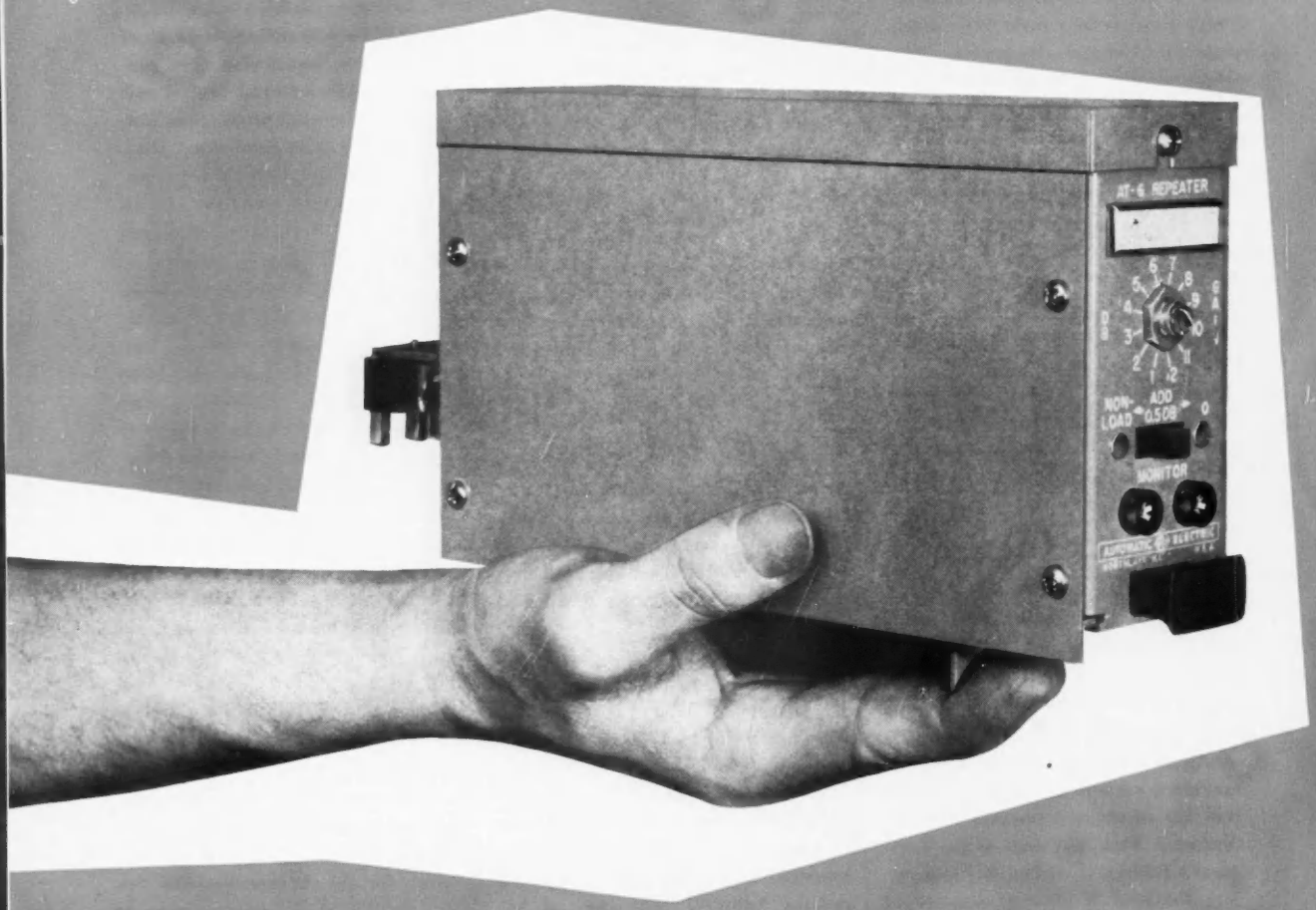
A member of the Rochester Chamber of Commerce and active in the Superintendent and Production Managers Group of the Industrial Management Council, Strassner is also a member of the Telephone Pioneers of America and the American Management Association.

Robert R. Dobbin joined Stromberg-Carlson in 1945 as a loudspeaker design engineer. He later transferred to the Telecommunication Division, where he became engineer-in-charge on telephone apparatus. In 1949 he was named assistant chief engineer, and in 1956 chief engineer of the Telecommunication Division.

Dobbin is a member of the American Management Association and the Acoustical Society of America. He is also a fellow of the American Association for the Advancement of Sci-

Please turn to page 98

NEW AT-6 SERIES-SHUNT REPEATER GIVES YOU 3 IMPORTANT BENEFITS



SAVES 50% MOUNTING SPACE

New AT-6 is a combination series and shunt repeater *in one case*. It offers all the advantages of AT-2 series and AT-3 shunt repeaters, but takes only *half* the space. Eight AT-6 repeaters mount on a 19" shelf. And AT-6 is fully transistorized for greater dependability, less gain loss.

GREATER IMPEDANCE ACCURACY

New AT-6 has line impedance compensators. This helps prevent "talker echo" and offers more accurate impedance matching. Network balancing is easily accomplished. You simply set the gain you want with a screwdriver—strapping tables are eliminated.

FASTER, EASIER INSTALLATION

New AT-6 uses screws to connect components in the network. All the installer needs is a screwdriver. No more wire strapping between terminals, no more soldering the network. You'll find the new AT-6 installer's set ideal for proper installation and adjustment.

These three benefits add up to *improved transmission at lower cost* for interoffice, tandem and toll connecting trunks. Whatever your needs for better transmission—whether it's AT-6 repeaters, loading coils or cable—*AE has it.*

AUTOMATIC ELECTRIC

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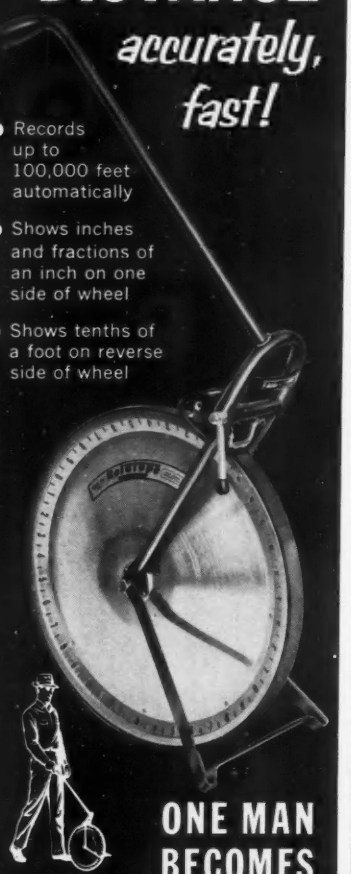
GENERAL SYSTEM

WRITE FOR NEW AT-6 CIRCULAR

For full information on AE's new AT-6 repeater, write for Circular 1987. It describes the AT-6, new installer's set and gives complete ordering information. For your free copy, write: Automatic Electric Sales Corporation, Northlake, Illinois.

MEASURE ANY DISTANCE *accurately, fast!*

- Records up to 100,000 feet automatically
- Shows inches and fractions of an inch on one side of wheel
- Shows tenths of a foot on reverse side of wheel



ONE MAN BECOMES A SURVEYING CREW

One man does all the measuring—in one-half the time it takes two men with a tape! Precision measurement over smooth or rough terrain is as easy as walking—and accurate to a fraction of an inch. Accumulated distance is always visible on the totalizer—accurately calibrated inches and fractions clearly legible on the wheel disc. See the complete line of Rolatape measuring wheels at your surveying or engineering instrument dealer or write for complete information today.

Rolatape, Inc.
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Rolatape
Measuring Wheels

ence, and a member of the American Institute of Electrical Engineers.

Charles W. Pritchard joined the division in 1937 as a credit correspondent, advancing to office manager of the Chicago Sales Branch. In 1940 he was appointed assistant general credit manager and the next year credit manager.

He was instrumental in formation of the Stromberg-Carlson Credit Corp., which assists Independent telephone operating companies in financing new equipment.

He became treasurer of this division's subsidiary in 1951 and was named treasurer of Stromberg-Carlson in 1953. He later served as finance manager of the Telecommunication Division. He is also president of the Stromberg-Carlson Credit Corp.

Arthur J. Fink has been with Stromberg-Carlson for 16 years, chiefly in financial departments. He became general credit manager in 1952 and assistant treasurer in 1954. In 1961 he became manager of finance for General Dynamics | Electronics.

Robert L. O'Connor has served as telecommunication plant controller in recent years. He joined the division in 1956 as a financial analyst and later became manager of cost accounting. He is a member of the National Association of Accountants.

Frederic W. Haupt joined Stromberg-Carlson in 1942 and became assistant advertising manager in 1945. He was named advertising manager for the Telecommunication Division in 1955.

He is a director of the Rochester Advertising Council and chairman of the policy committee of the Rochester Ad Club. He is also a member of the Association of National Advertisers, Rochester Advertisers, and Chamber of Commerce.

Walter E. Black served as personnel director of Ball Brothers Co., Muncie, Ind., from 1946 to 1950. He later joined Convair Division of General Dynamics and served as labor relations administrator at General Dynamics | Pomona before transferring to General Dynamics | Telecommunication. He is a member of National Management Association.

Charles F. Cheney has been in the telephone industry since 1949, serving in various positions with ITT Kellogg. He joined Stromberg-Carlson in 1958 as staff assistant to the vice president — telecommunication and was named manager of marketing research — telecommunication in 1959.

He is a member of the American Institute of Electrical Engineers, the American Marketing Association, and Rochester Chamber of Commerce.

FINK

O'CONNOR

HAUPT

BLACK

CHENEY

GARNER

John E. Garner has been in the telephone industry since 1940 and associated with Stromberg-Carlson since 1953, when he became head of the Mechanical Engineering Section.

In 1955 he was named assistant director of product development and the next year director of product engineering. In 1957 he became manager of military electronic projects and then assistant chief engineer.

In 1959 he was named project general manager for the Titan Communications Office in El Segundo, Calif. Stromberg-Carlson communication systems are being supplied for Titan missile bases.

Shisler New Manager Lynch Application Eng.

DAVID SHISLER has been appointed manager of application engineering for Lynch Communication Systems Inc., reporting to Harrison Johnston, marketing manager. Shisler will review applications of communication equipment and systems for telephone, telegraph, microwave, data transmission and control as well as assist in writing specifications for new products.

SHISLER

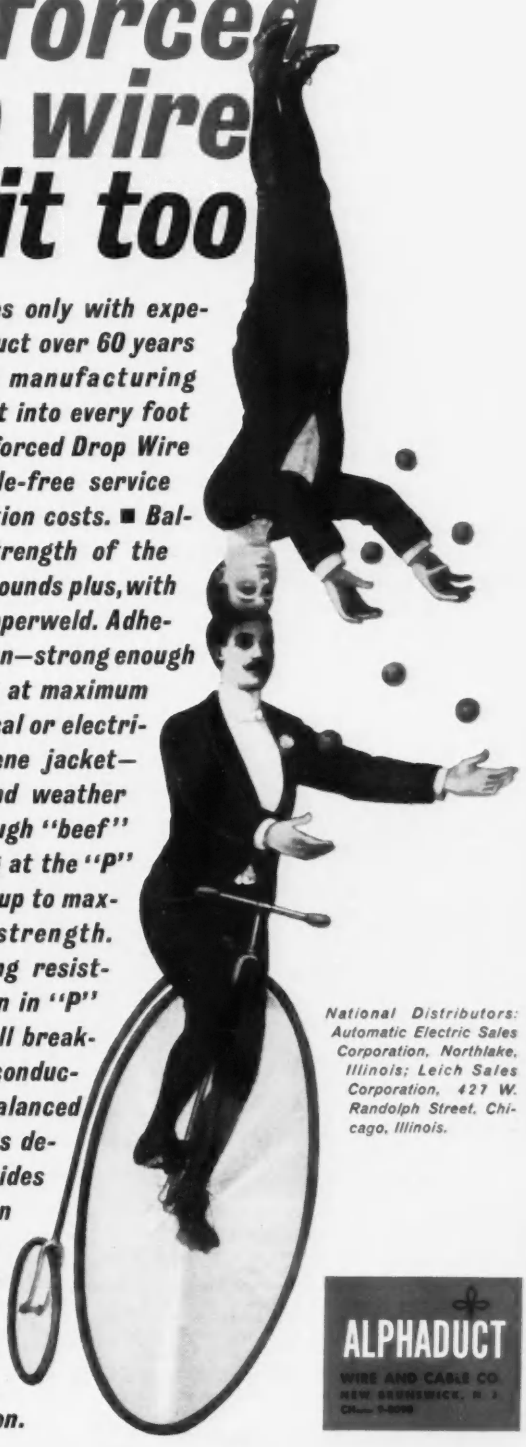
Shisler joined the firm in 1953. He has worked as manager of the company's Inside Sales Department. His experience in the communications industry began in 1939 with Douglas Aircraft Company and includes work with Northrop Aircraft, Engineering Associates, and the Communications Equipment Division of the Robert Dollar Company.

L. M. Berry's B. D. Addington

IN A RECENT announcement of seven management changes in L. M. Berry, the service record of B. D. Addington, special representative for the eastern territory, was not given.

Addington joined the firm in 1935 as a salesman in the Florida district. He worked as salesman and super-

true balance... alphaduct reinforced drop wire has it too



True balance comes only with experience...at Alphaduct over 60 years of technical and manufacturing know-how are built into every foot of Alphaduct Reinforced Drop Wire for greater trouble-free service and lower installation costs. ■ Balanced breaking strength of the conductors—400 pounds plus, with #18 AWG, 30% copperweld. Adhesion of the insulation—strong enough to prevent slipping at maximum load without physical or electrical failure. Neoprene jacket—tough, abrasion and weather resistant with enough "beef" to prevent buckling at the "P" clamps all the way up to maximum conductor strength. Compression cutting resistance—no breakdown in "P" clamps up to overall breaking strength of the conductors. This sturdy balanced construction resists deformation and provides greater protection against lightning failures. ■ Insist on Alphaduct Reinforced Drop Wire... and remember, it's dated for comparison.

National Distributors: Automatic Electric Sales Corporation, Northlake, Illinois; Leich Sales Corporation, 427 W. Randolph Street, Chicago, Illinois.

ALPHADUCT
WIRE AND CABLE CO.
NEW BRUNSWICK, N. J.

2 NEW FEATURES OF
FITCHBURG CHIPPERS

Give you longer engine life, save gas, add safety

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2. **GREATER ECONOMY** with NEW SOLENOID SWITCH* Allows operator to idle motor between actual brush feedings *from his normal feeding position.* You save on gas and engine wear.

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visor in the eastern, central and southern sections. In 1941 he became Mideastern Div. manager, a position he held until his recent appointment as special representative for the eastern territory with headquarters in Bristol, Tenn.

C. M. Green Manager North Telecom Div. Eng.

GREEN

CURT M. GREEN is now manager, field engineering, Telecom Div., North Electric. He will work with the larger Independent companies, establishing closer engineering liaison. He also will prepare and distribute engineering information for North staff engineering and sales groups.

Green is a graduate electrical engineer and has worked with L. M. Ericsson Company in sales and engineering activities. Two recent assignments included projects in Australian post office and Canadian crossbar systems.

Marrs, Weisz Elected Motorola Vice Presidents

HOMER L. MARRS, national sales director, Motorola Inc. Communications Div., has been elected vice president — sales for the division. William J. Weisz, manager of mobile and portable communications products in the Communications Div., is now vice president — communications products for the division.

Marrs' 23-year career with Motorola, in which he pioneered distribution of mobile communication systems, dates from 1938 when he joined the Communications Division. He advanced from production coordinator to salesman, zone manager, regional manager, area manager, and to director of sales for the division.

Prior to 1938, he was with Philco Radio and TV Corp. as expediter, with Burrell Engineering and Construction Co. as a superintendent, and was self-employed as a long-distance truck owner and operator.

Born in Miles City, Mont., he

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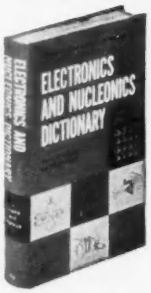

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MARRS

WEISZ

studied business administration at the University of Wisconsin and undertook advanced training in economics at the University of Chicago.

Weisz, a 1948 graduate of Massachusetts Institute of Technology in electrical engineering, joined Motorola that year and was appointed manager of the Subminiature Equipment Engineering Section in 1952. He became product manager for portable communications products in 1954, chief engineer for two-way mobile and portable products in 1956, and manager of that department in 1958. He has represented Motorola on committees of the Electronics Industry Association.

Hubbard Promotes George C. Wright

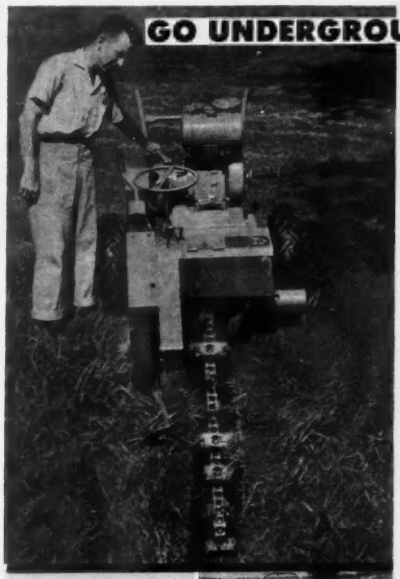
GEORGE C. WRIGHT has been appointed marketing manager of Hubbard and Company. He will coordinate and direct marketing activities of pole line hardware products from the Hubbard general offices at the Roosevelt Road, Chicago, factory.

Before joining Hubbard early in 1960 as Southeast Division sales manager, Wright served in various engineering and management capacities in private and public utility industries in the South.

Dorman Ewers to Represent Witch Marketing Co.

DORMAN EWERS is now communications industry representative for Witch Marketing Company, Perry, Okla. He began work with the Southern Bell Telephone and Telegraph Company in Chattanooga, Tenn., in 1924, doing line work, station installations, station repairs, testboard work, and cable splicing.

He became district plant manager in Jackson, Tenn., in 1946, serving



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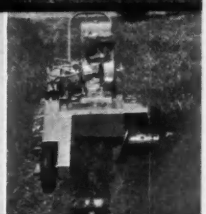

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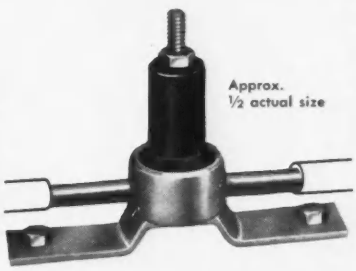

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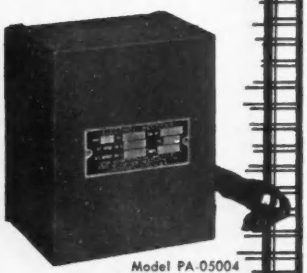

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Schauer Type PA-05004 Battery Eliminator delivers constant, hum-free direct current to the operator's circuit. Equipped with relay for automatically transferring power to stand-by dry cells in the event of AC failure. Standard capacity is 4 volts DC at 0.5 amps. Steel case, for wall mounting is 5½"x6¼"x4".

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in similar positions in West Palm Beach, Fla.; Miami, Fla.; and Atlanta, Ga.

In 1953 Ewers became general plant manager for the state of Louisiana, serving until 1958. At this time, he was named assistant to the plant staff operations manager in Atlanta, Ga.

C. R. Wilson Promoted To S-C Service Engineer

CARL R. WILSON has been promoted to service engineer for Stromberg-Carlson telecommunication products.

Wilson will work in the Kansas City branch territory. He succeeds Curtis B. Meyers, who has moved to the assistant chief installer's post at the division's headquarters in Rochester, N.Y.

WILSON

Wilson joined the company in 1954 as a Stromberg-Carlson telephone equipment installer. Since 1956 he has been an installation foreman for XY dial systems. His most recent activity was in Tomah, Wis., on the North-West Telephone Company's XY dial network. Prior to joining Stromberg-Carlson he worked for the Western Electric Company as an installer.

Journal Features Telephone Answering Set

AN ELECTRONIC secretary telephone answering set, Model SP, designed for residences and small businesses at a cost comparable to residential telephone rates.

— A teletypewriter switching system, designed for the Chicago Police Department, that provides separate networks for administrative and for operation messages.

These are two features in the October, 1961, *Automatic Electric Technical Journal*, published by Automatic Electric Laboratories, Inc., Northlake, Ill.

Six other features are: "Applying the AT-6 Negative-Impedance Repeater," "Data Transmission Through Strowger Automatic Offices," "'Reusable' P-A-B-X Serves 80 Stations Via Common Control," "The New Automatic Trunk Routiner," "Field Trial of a SATT System with PPCS," and "A 'High Density' Carrier Telephone System."

On the electronic secretary, the article tells how the SP applies the "bi-planar" system of magnetic recording — a phonograph-type turntable with magnetic recording surfaces on two planes. The telephone answering message is on the peripheral flange of the turntable. Space for 13 incoming messages is provided on the top surface. The article also discusses message switching, amplification, and construction techniques.

The table of contents summarizes these articles in Spanish, French, Italian, and English. For a copy of the October *Journal*, write: Editor, Public Relations Department, Automatic Electric, Northlake, Ill.

Raytheon Semiconductor Operations to Lowell, Mass.

RAYTHEON Company is expanding its semiconductor operations by moving its Massachusetts' silicon transistor, rectifier and Circuit-Pak activities to Lowell, Mass., from five locations in the Greater Boston area. The move is scheduled for completion before Jan. 1, 1962, company officials said.

Raytheon's Semiconductor Division will establish its headquarters, sales and other division staff offices and advanced engineering laboratories in the vacant former CBS Electronics plant in Lowell.

The move began September 25, and it is estimated that production would be under way by early November in the new location.

This is the second new building occupied by Raytheon's Semiconductor Division this year. The company dedicated a new plant at Lewiston, Maine, in June.

The 1,200 employes at 150 California St., 153 California St., and 55 Chapel St., all in Newton, Mass., and at 37 Galen St., Watertown, and at 75 North Beacon St., Brighton, are being given the opportunity to transfer to Lowell. Chapel and Galen St. facilities will be used by Raytheon's Industrial Components Division, not

affected by the relocation.

CBS Electronics made several lines of germanium transistors and diodes in the Lowell plant. CBS has sold certain specialized equipment to another firm. More than 150 former CBS employes have joined other Raytheon plants in Lowell and Andover, Mass. These plants are part of the Aero/Weapons Division for accelerated missile production.

John Kevill Joins Lynch Com. Systems

JOHN F. KEVILL has joined the engineering staff at Lynch Communication Systems Inc. He will be engaged primarily in design and development of new systems. A graduate in engineering from the University of Nebraska, Kevill came to Lynch from Hazeltine Corporation, Indianapolis, Ind. He formerly was with the Allison Div. of General Motors.

KEVILL

V. W. Riley to Eastern Sales For RCA Microwave Products

VROMAN W. RILEY has been assigned to handle sales in 15 eastern states for the Radio Corporation of America's Microwave Department.

His headquarters will be in Camden, N. J. He succeeds R. J. Fichthorn, transferred to the department's national accounts group.

Before joining RCA, Riley had been midwestern sales manager for Motorola Communications and Electronics for the past seven years. Previously he was in that company's carrier systems engineering activity.

Riley was graduated from Illinois Institute of Technology with a degree in electrical engineering.

Mark Sullivan, President, Director of Dialaphone Corp.

MARK R. SULLIVAN, former president of Pacific Telephone and Telegraph Co., has been elected president and director of Dialaphone Corporation. Sullivan also will be presi-

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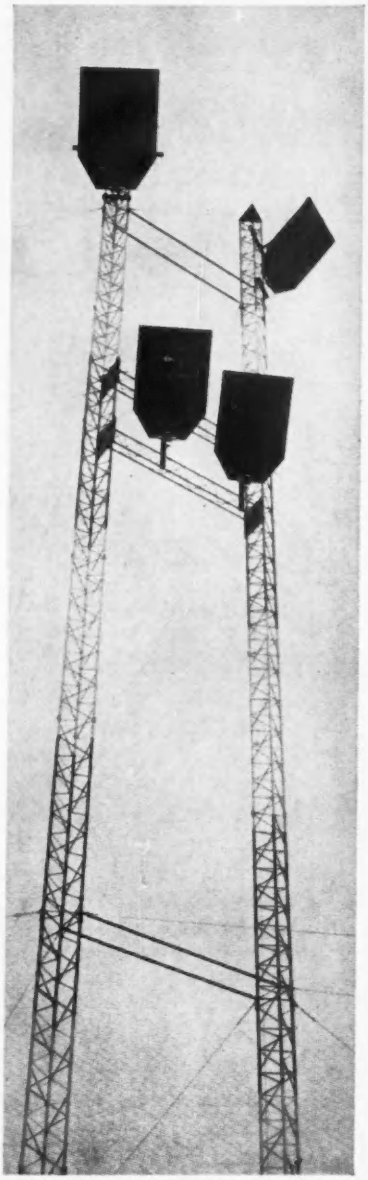

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Marketing Project Manager Robert White of Lenkurt Electric Co. Inc., explains features of new microwave radio system at sales conference in Palo Alto, Calif.

dent and director of Perini Land and Development Company and will be director of the Perini Corporation, the parent organization.

Robert H. Ryan, executive vice president for industrial planning and development for Perini Corporation, will be chairman of the board of the Perini Land and Development Company.

James Kilburg, former president and director of Dialaphone Corporation, resigned August 14 to open an engineering and research firm on the San Francisco penninsula. Kilburg also will be consultant to Dialaphone Corporation.

71-Plus Attend Lenkurt California Sales Meeting

MORE THAN 71 marketing executives and sales engineers of Lenkurt Electric Co., Inc. — 30 of them from district offices throughout the U. S., Puerto Rico and Canada — attended a five-day sales conference September 18-22 in Palo Alto, Calif.

Among new systems introduced by Marketing Vice President Herbert K. Krengel and other Lenkurt officials was a broadband microwave radio system (Type 76A) for operation in the 6,000-mc band and reportedly capable of carrying color TV, up to 600 carrier-derived voice channels, or equivalent amounts of other data. Also shown was a transistorized Mobiltel mobile telephone transceiver for vehicles.

This was Lenkurt's first big sales conference since January, when the firm took over all of its product distribution, formerly handled by Automatic Electric Sales Corp., Northlake, Ill.

Since January Lenkurt has established district sales offices at Dallas, Tex.; Minneapolis, Minn.; Chicago; New York City, and Atlanta, Ga., in addition to the western region office at San Carlos, Calif., where it has its headquarters and manufacturing facilities. Sales in Canada are handled through Lenkurt Electric Co. of Canada, Ltd.

J.D. Case to District Manager, Raytheon Chicago Office

J. DERYL CASE, Cleveland district manager of Raytheon Company's Distributor Products Division, has been named district manager of the firm's Chicago office.

Headquartered at Raytheon's offices in Franklin Park, Case will direct sales of the firm's electron tubes, transistors, citizens band radios and other electronic components and equipment to distributors in the Illinois area.

Succeeding him in Raytheon's Cleveland office will be George F. Weiler, former district manager for CBS Electronics in that area. Weiler will serve the Ohio, Pennsylvania, West Virginia and Indiana areas for the company.

Before joining Raytheon, Case was a sales counselor for General Electric Company, starting with that firm

CASE

WEILER

in 1954 after serving as a senior credit analyst with the First National City Bank of New York. He received his B.S. degree in economics from DePauw University, was awarded the Certificado de Estudios by the University de San Marcos, Lima, Peru, and completed graduate studies in advertising and marketing at New York University's School of Business Administration.

Weiler was an independent distributor in Detroit, Mich., for eight years before joining CBS in 1958. He completed his studies at the University of Detroit and Wayne State University.

Transmission Expert Bruce McCurdy Dies

BRUCE H. McCURDY, authority on telephone transmission problems, died at his home in Rochester, N. Y., in September after a brief illness. He was 61.

For the past three years he had been a staff engineer in the System's Planning Department of General Dynamics|Telecommunication Division.

McCURDY

Prior to joining General Dynamics in 1958, Mr. McCurdy worked with the General Telephone Company in Erie, Pa., and San Angelo, Tex., as a staff engineer on transmission standards and design.

Mr. McCurdy's early experience in the telephone industry was with the New England Telephone and Telegraph Company in Boston and with the International Telephone and Telegraph Corporation, for which he served as a long-lines transmission engineer in Rumania, Spain, England.

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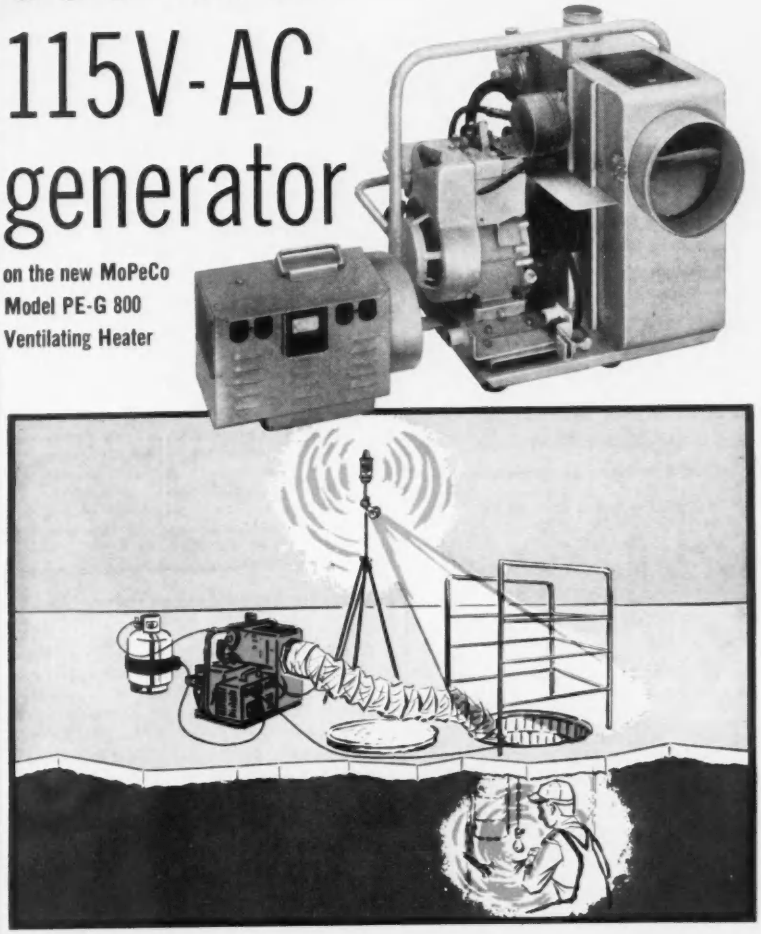

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NEWS AND VIEWS OF INDEPENDENT TELEPHONY

VOLUME 10, NO. 8 | Published by General Dynamics | Telecommunication | NOVEMBER, 1961

California-Pacific Utilities finds it pays handsomely:

Subscriber education prior to DDD cutover

The innovations required in a far-reaching new program, such as Direct Distance Dialing, present a challenge to any operating company taking this step for the first time. The immediate high acceptance of direct dialing (76% of *all* toll calls initiated during the first month) and the rewarding accuracy in billable tickets show how well the California-Pacific Utilities Company handled this challenge in their Myrtle Creek, Oregon, area.

When top management arrived at the decision to invest in toll ticketing equipment, a 5-part program was initiated:

1. Preliminary engineering, to determine equipment needs and learn what make of equipment could meet them best;
2. Final engineering in cooperation with the supplier;
3. Subscriber notification and community-wide publicity;
4. Education of telephone company personnel in all phases of DDD;
5. Personal contact and "on-location" assistance in DDD procedure for large toll users and others who requested help.

The first two parts were, necessarily, individual to the installation at Myrtle Creek. Once the decision to purchase Stromberg-Carlson® ticketing was made, inherent extra benefits became part of the planning.

Subscribers were notified of the new service 6 months prior to cutover. Two types of bill stuffers were used, showing a sample of the new number plates with an explanation of the "circle" digit and outlining the simple procedure for placing a typical call.

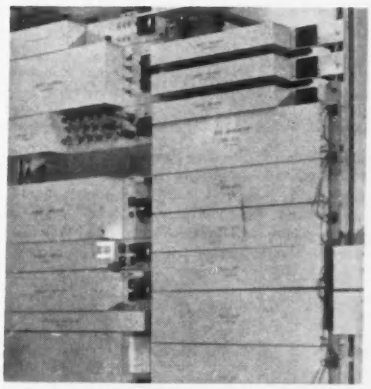
At about the same time, community publicity was begun. Close contact was established between the local manager and the area newspapers so that paid advertising was matched by the developing story of the service planned, the arrival of equipment and installation progress. A highway billboard notified those approaching Myrtle Creek of the new service.

Informative talks were presented before civic organizations by the local manager and the telephone engineer. Benefits were stressed; questions were encouraged, and answered forthrightly. Frequency of these talks was arranged to build and maintain interest prior to cutover. Color films, loaned by the Connecting Company, proved very effective. Maps showing the Area Codes in United States and Canada were distributed to all present at these meetings — this helped draw an audience.

Simultaneously with the public relations program, a very comprehensive company personnel educational series was undertaken. Plant and Commercial employees attended all of these on-the-job instruction meetings; others were brought in to the extent that each company employee would have a "speaking acquaintance" with the system operation and the advantages that would accrue to the subscribers. Officials believe that their people, being informed, took great personal pride in promoting a favorable attitude toward the service.

As a finale to the customer relations program, a young lady thoroughly schooled in DDD techniques made personal calls on subscribers whose toll usage was high and on those who had special questions — or perhaps misgivings — about their own ability to dial distant points. Subscriber response was most enthusiastic, and this approach will be continued in future DDD programs.

Billboard announcements of coming DDD for Myrtle Creek, Oregon, area were constant reminder to the motoring public.



Equipment that sets up routing, interprets, times and reads out billing data for Direct Distance Dialing calls.

California-Pacific had pledged its reputation to provide the most modern, efficient service. Judging by wholehearted subscriber acceptance, the company feels it has fulfilled its pledge. The investment of funds in this new telephone equipment is a prudent one, further enhancing shareholders' equity while promoting customer satisfaction and goodwill.

Masthead Photo: See page 113

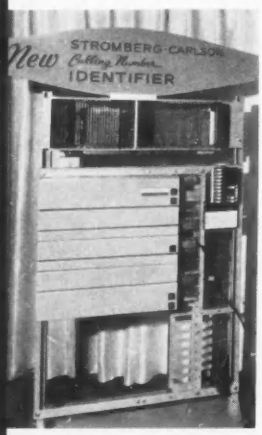
Convention visitors hail

New 12-channel subscriber and trunk carrier met a favorable response, along with the Stromberg-Carlson combination repeater, which provides definite economic advantages.

Now in service at Southern Pines, North Carolina, this DYNALOGiC PEBX was a center of interest for Independent telephone men from all over the country. The PEBX is completely compatible with existing electromechanical equipment, but offers many new subscriber services. DYNALOGiC electronic switching systems directly attack the problem of space, permitting up to five times the number of lines in the space required by conventional equipment.

Another hub of attention was the Stromberg-Carlson 1700 telephone. Available in three models (5 lines and Hold; 5 lines and Hold expandable to 11 lines; 11 lines and Hold initially installed), this modern business phone can meet the needs of a wide range of commercial subscribers.

The new Stromberg-Carlson F-50 Dial PBX, already proving itself in use, was being talked about enthusiastically even before the convention began. Featuring the timesaving "Touch-Lite" turret, the F-50 system simplifies the attendant's job, speeds office communication.



With more and more Independents seriously considering Direct Distance Dialing, the new Number Identifier for average-size toll dialing systems was viewed with great interest . . . New electronic ringing machine with optional universal standby offers choice of decimonic, harmonic, or synchromonic ringing.

new Stromberg-Carlson® products

A single four-letter word — "SOLD" — will be remembered from among all the product displays and new ideas seen or heard at the USITA Convention. For this word is proof that electronic switching for Independents has, for the first time, moved out of the laboratory stage; a Stromberg-Carlson production model is now ready for commercial installation. Its name: DYNALOGiC.*

Needless to say, other products were of high interest to many visitors whose concern, at least for the present, is with demands for well-established types of service using improved, but conventional, techniques. In those areas there *was* competition between exhibitors.

Rooms 504A-509A at the Conrad Hilton drew more than the usual throng; to watch actual demonstrations of the new Stromberg-Carlson products, and also because many wondered how the reputation for most-arresting display could again be achieved.

In the large room with the DYNALOGiC PEBX were other electronic "firsts": 12-channel subscriber carrier and trunk carrier; the associated carrier repeater; and an alternate to the widely-used 541 Repeater that provides greater economy under specified conditions. A new type 600-channel high-density multiplex system meeting CCITT specifications was well received.

In an adjoining room the full line of telephones included the new 1700 business instruments, in 6 lines, or 6 expandable to 12, working with the 6K-1 switching cabinet. A tone ringer — first available for use inside the "Petite"-type phones — was demonstrated.

The F-50 PBX, most attractively demonstrated, astonished those who had not become familiar with how much service could be accomplished so easily in so compact a switchboard.

In toll ticketing, now first on the agenda for many operating companies, advances were shown that permit greater reliability at a lower initial investment, including PPCS service.

Of considerable interest was a new electronic ringing machine that offers a flexibility and reliability never before available, coupled with the lower maintenance inherent in solid state design.

The consensus of opinion by operating management: "This telephone business means that you have to move forward just to keep in the same position!"

*DYNALOGiC is a trade mark of General Dynamics Corp.

Old Stromberg-Carlson phone, now on display at University of Arkansas' museum, presents vivid contrast with up-to-date equipment at this year's convention. But like these modern products, it was, in its own day, the finest quality made.

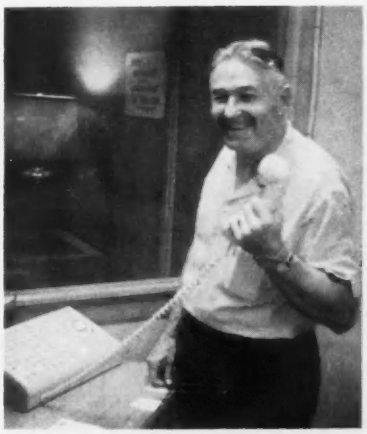
Lufkin, Texas, chain store first in Southwest to use F-50 PBX

When Marion Clay, general manager of the Lufkin Telephone Exchange, Inc., was planning telephone service for the Perry Brothers' headquarters, he had just become familiar with the new Stromberg-Carlson F-50 PBX. Executives of this 85-store variety chain operating in all sections of Texas and Louisiana became very enthusiastic when Mr. Clay pointed out the number of extra service features available in a system as small as this.

The installation — first in the Southwestern states and one of the first in the country — was made entirely within a portion of an unused elevator shaft in the building used as a warehouse. This resulted in a minimum of inconvenience to Perry's and the Lufkin Telephone exchange. The F-50 PBX will initially provide 23 stations, located in the headquarters building and the warehouse, with several different classes of service, including consultation and call transfer, night transfer at answering station, station answer of trunk calls, camp-on-busy, and single-touch incoming call extension.

Lufkin, under Mr. Clay, has a well-earned reputation for excellent PBX service. The installation of the F-50 continues this trend of leadership in serving its commercial customers.

Marion Clay's expression indicates how he feels about the F-50 turret with the exclusive "Touch-Lite" feature.



Lighted keys let Mrs. Jean Edwards, Perry Brothers' PBX operator, know the status of every line at a glance.

CARLA CALLED!

Help came quickly. Mrs. Vicena Green, of the LaWard (Tex.) Telephone Company, was immediately offered services of a construction crew from Gulf States Tel., directed by James Woody of Palestine Telephone Co. (left in photo). Other men are Frank Dean, field engineer for Stromberg-Carlson Credit Corp., and C. E. Fogg, sales representative — one of first to enter ravaged area.

Only those who have experienced a hurricane can comprehend it — and even they can't believe what they know is true.

Yet all the incalculable destructive force of Carla cannot match the will and determination of people in the Texas Gulf area to return and rebuild on whatever foundations were spared. And in the midst of hardship, men rose to the stature of brothers.

For the small telephone company owner, like Mrs. Vicena Green of LaWard, there might have been little incentive to pick up the pieces. The general situation in one of her towns — Port Alto — was pinpointed in the obliteration of her own home (see photo below). Over 100 foundation slabs mockingly mapped where houses once stood. As Frank Dean, field engineer for Stromberg-Carlson Credit Corp., said, "It looked like a Pacific island after a pre-invasion bombardment."

Mrs. Green, who had evacuated inland with all the others, did not have to return alone. When Charley Fogg, General Dynamics | Telecommunication sales representative, relayed the news of her plight to friends at Gulf States Telephone Company, the response was instantaneous. A construction crew directed by James Woody was waiting when the police barrier was lifted. This rekindled hope when it would have been so easy to let the spark die out.

Frank Dean was authorized by the Credit Corp. to engineer and commit funds as the situation demanded, irrespective of the size of the company that had been in the path when Carla called.

L. A. Wallace of Gulf States Tel. and James Woody survey wrecked bridge over Carancahua Bay at Port Alto. 18 inches of reinforced concrete plus 4 inches of macadam swallowed as a hungry boy devours bread and jam.

Five miles inland the wind blew out gable end of this house; then high water deposited someone else's TV set, lounge chair and mattress in the exposed attic. Other heavy debris — refrigerators, deep freezers, boats and motors — from miles away are lying where left by the receding floods.

Owners of this house trailer were inside when it was flipped across the highway in Lolita, another of Mrs. Green's exchanges. Occupants were not seriously injured; cut their way out . . . Mrs. Green stands by all that was left of her house and belongings in Port Alto. In fact the fence and upright building at left are intruders, having floated in on the tidal wave . . . At Port Lavaca a shrimp boat, tug and car ferry were washed over to the land side of Highway 35.

At Hubbard, Iowa, Springfield, Minn.,

Agreement on best service brings XY® Dial to 2200 subscribers

Football fans in Minnesota and Iowa never have settled the dispute over which of their teams was stronger in last year's Big Ten Conference race. Identical won-lost records tied them for the top spot and spurred new arguments on both sides.

Fortunately, telephone men in these parts have no such difficulty. They've pretty much agreed on the No. 1 choice in dial equipment — XY Dial.

Twenty-two hundred subscribers in the two states recently benefited from this agreement when Hubbard, Iowa, and Springfield, Minnesota, converted to modern dial service.

Hubbard, Iowa, located just north of the state's center, lies in the great Corn Belt. A large number of manager George Carlson's 700 subscribers make their living from the land.

Board backs plan

The new dial service at Hubbard Mutual Telephone Company was a joint effort spearheaded by president Wayne Janssen. The board of directors was 100% behind the dial program from its beginning and continued its support till completion of the job.

The modern, efficient Stromberg-Carlson telephones now used by all subscribers at Hubbard contrast nicely with former manager Carl Dubberke's antique phone collection. Carl, a 24-year employee of the company, has assembled one of the finest collections of old-time instruments in the state.

Although Hubbard is known primarily for its corn crops, hog and cattle raising are also important parts of the economy. Stan Dreier, vice-president of the company, turning his talents in another direction, raises thoroughbred quarter-horses for show.

Still in the Corn Belt, but further north, is Springfield, Minnesota. Here Paul Glaeser, owner and manager of the Western Telephone Company, was joined by telephone men from several parts of the state for conversion ceremonies. Also on hand were Mr. Glaeser's sons William and Paul, Jr., from Waconia and Winthrop, Minn.

Serves 1500 stations

Springfield is situated in Brown County, approximately 60 miles from the southern and western borders of the state. Fifteen hundred stations there are served by the Western Telephone Company.

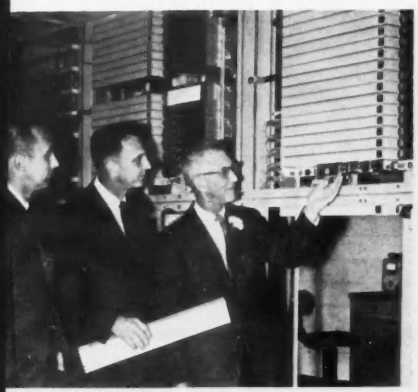
The company invited all subscribers to an open house scheduled a few days after the cutover to acquaint them with the new XY Dial office and its operation.

Masthead photo, first page. Carl Dubberke, former manager at Hubbard Mutual Tel, displays part of his antique telephone collection.

Action of XY Switch is checked during circuit test at Springfield by Wayne Janssen, center, president; George Carlson, manager, at right.

"Hello, Norway!" Jenny Marie Drablos, exchange student, places first call over Western Tel XY Dial system to her parents in Volda, Norway. Standing behind Jenny are Mr. and Mrs. Gerald Knudson, with whom she made her home while in Springfield.

This is the management team at Hubbard. Left to right: Raymond Andrews, Floyd Meyers, secretary; Elmer Reifschneider, Wayne Janssen, president; Stanley Dreier, vice-president. All are members of the board of directors. Kneeling in front is manager George Carlson.



Approval on the family plan. Paul Glaeser, owner and manager of Western Telephone Co., discusses advantages of XY Dial system with sons Paul, Jr., and William, center.

It's all set. Richard Feser, plant superintendent at Western Tel, makes final check prior to cutover. After studying test board, Dick signalled his "okay to cut."

Dial 114 for Service

Bill Sadler, Warsaw district manager of United Telephone Company of Indiana, Inc., must understand "pussy language." Mother cat chose stockroom of telephone company for her confinement period, and obviously knows the value of a handy bedside extension for those step-saving emergency calls.

Although the six newest additions to United personnel were a complete surprise to all, the stray family will receive the same courteous service supplied to any customer. And in the evening? . . . Well, at least the dial glows!

Who says telephone men aren't versatile? Bill Sadler completes "room-and-board service" with milk and bread. Photo by Woody Koher, *Warsaw Times-Union*.

O'Donnell, Texas, XY Dial office features "imported" roof

"Most of the building was constructed right on the site. But the roof — that came in from Houston by rail."

That's how Jim Howell, sales representative for Stromberg-Carlson products in West Texas, describes the structure that houses the new XY Dial equipment at the O'Donnell (Texas) Telephone Company.

For Mrs. Bill Davis, owner and manager of the company, the building and the dial equipment inside were the result of several years of planning and effort.

The cutover, which took place recently, was actually the second half of a two-step conversion. Local dial service went into effect in February. Toll and extended area continued to be handled over the old switchboard until another Independent was able to tie in with the O'Donnell office.

The sturdy telephone building, including its well-traveled roof, is constructed entirely of concrete and concrete block. The roof was placed on the building in subfreezing weather, when pouring concrete would have been impossible. A testimony to the ruggedness of the building is the fact that it carries the lowest insurance rate in O'Donnell.

O'Donnell is located seventy miles east of the New Mexico border, just south of Lubbock. The O'Donnell Telephone Company serves 330 subscribers, many of them in surrounding rural areas.

Extended Area Service and toll calls were handled on old switchboard by Jeffie Newton and Nel Barton until recent conversion.

Mrs. Bill Davis, right, owner and manager of O'Donnell Tel, shows Collie Craft and Mrs. Katy Shelter the layout.

Three major telephone users in O'Donnell are extremely happy about the conversion. Weldon Martin, left, manager of Farmers Coop Gin, has 6K-1 in his office to help him meet busy schedule. Mayor Jimmy Nash, center, uses his phone to keep government running smoothly. Superintendent of schools John Criner has whole school system at his finger tips with a 2-10.

Transmitter
GEORGE B. FORBES, Editor
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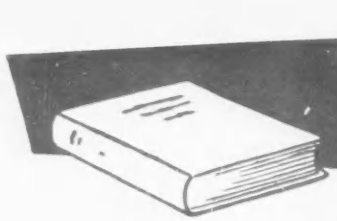


THE BACK OF THE BOOK

By JOHN G. REYNOLDS

How to Live Without a Budget

WE'D LIKE to remind you that our lawmakers have just set a new peacetime spending record — appropriating $95.8 billion, well over $11 billion more than the previous peak.

The massive total staggers our imagination. We were never one for figuring out astronomical figures. But there is something we've discovered, to our dismay and distress. Of the $95.8 billion, more than $48 billion has been appropriated for nonmilitary spending as against $47 billion-plus for defense.

So we're going to spend more money running things at the same old government stand than we spend for our global defense!

The government has lived within its income just six times in the past 30 years. It's more than $290 billion in debt — and that debt is an obligation against every man, woman and child in the country.

Isn't it high time to abandon the ruinous welfare state philosophy of the government, and cut nonessential federal spending to the bone?

Memo to Uncle Sam: 'R-E-L-A-X!'

IF WE CONTINUE to surrender state and local governmental responsibilities to federal agencies, we could wind up with socialized control over our lives.

So said Donald J. Hardenbrook, national vice president of the National Association of Manufacturers, in a Houston, Tex., address.

"The time could come," he told the American Standards Association, "when we could be unable to choose our own careers, change jobs, start a business, buy or sell property, take out a mortgage, move from place to place, borrow money, or even send our children to college without getting permission from some government bureau.

"Name almost any facet of American life — whether it's planting tobacco or getting rid of skid row — and there's someone in Congress or in the administration who has a scheme for getting the federal government into it."

Then Hardenbrook listed 10 things the government is reaching for in Congress:

Control of factory location — local school systems — city developments — production and distribution of value through more federal power production — hospitals and medical care for the aged;

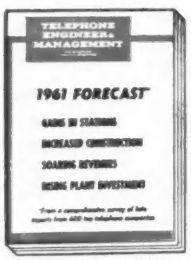
Regulation of wages in intrastate as well as interstate business; regulation of employment market — business profits — and more complete regimentation of the farmers in the nation.

Capsule Editorial

WE OFTEN MAKE the mistake of believing that money is wealth. Of course it is only the symbol of work done, services rendered, value received.

It is not meant to be used as power over others, not to be hoarded, stolen, or squandered. It is stamped "In God We Trust" — but many have mentally inserted the letter L, making it read "In Gold We Trust."

Our personal standard has sometimes been the Gold Standard. Wouldn't a much finer one be the Golden Rule?



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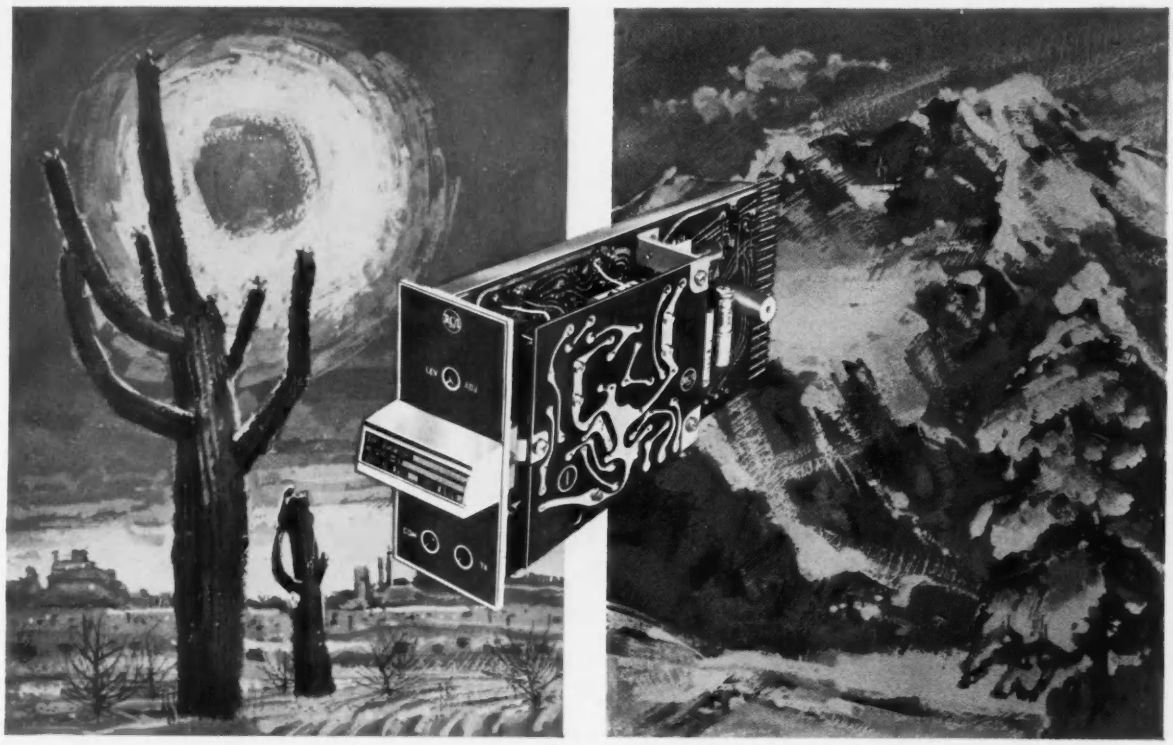
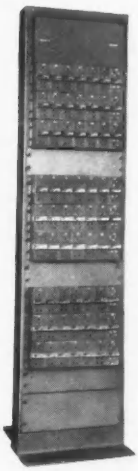


NOW...Transmission Reliability under all environmental conditions with Solid State Multiplex...Type CT-42



Tropic heat . . . arctic cold . . . sustained periods of moisture. New CT-42 provides accurate, reliable tone transmission under the widest range of environmental conditions.

Built-in performance assures reliability where you need it the most! Computer grade components and rugged, modular construction provide lasting dependability to not only withstand the rigors of extreme climatic changes, but also to stand up under the grind of continuous service.

For teletype, signaling functions, control or data transfer, each channel can be frequency-shift or AM keyed. Six transmitters or receivers in any combination may be plugged into a standard shelf that also contains a husky, regulated power supply.

24 channels from 420 to 3180 cps
Spaced every 120 cycles (CCITT Standards)
18 channels from 4300 to 7600 cps
Spaced 170 to 220 cycles
Channel units operate on 24 V DC or a 117 V AC power supply

Environmental Specifications for 100 Word-per-Minute Telegraph Service
Storage Range: —55°C to +85°C
Operating Range: —30°C to +65°C

The Most Trusted Name in Electronics
RADIO CORPORATION OF AMERICA

Mail coupon for additional information

Radio Corporation of America
Microwave Equipment, Dept. BC-430
Building 15-5, Camden 2, N.J.

☐ Please send new catalog sheet and price list on Type CT-42 Tone Equipment

NAME _____ TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Let our "Revenue Men" show you

THE EXTRAS THAT GO WITH INCREASED SALES!

Take a man like

Mel Hauser

Mel is one of our "Revenue Men" in San Antonio, Texas.

His sales savvy covers a wide range—real Texas-sized. Mel started his business career with an electrical company, packing in seven years' experience. Then, seven months before Pearl Harbor, he joined the U. S. Army.

Immediately after the war, he went back to work in sales—first with a specialty company, then in the insurance business.

In 1947, Mel joined General Telephone Directory Company as a sales representative in our San Antonio unit. Later he went to Texarkana as senior salesman, and became Sales Supervisor of the Texarkana unit in 1952. He returned to the San Antonio unit as Sales Supervisor in 1954.

Mel and his wife have two lovely teenage daughters.

Men like Mel Hauser are typical of the "Revenue Men" who work for General Telephone Directory Company and for you. And they all have one thing in common—they are always an asset to any community.

You get more than extra sales when you put one of our "Revenue Men" to work on your directory.

His manners, his methods will be a positive credit to your company. He'll be welcomed by your advertisers.

He'll work together with you to produce a book you can be proud of. A directory with complete Yellow Pages service—showing the public where to go for all kinds of purchases, rentals and services. A directory with maximum accuracy, maximum revenue.

And you won't have a worry in the world. Selling, publishing and printing are all done to perfection as part of our Complete Directory Service Plan.

Want to know more about it? A phone call or letter to our nearest office will bring a representative on the double.

GENERAL TELEPHONE DIRECTORY COMPANY

1800 Oakton Boulevard
Des Plaines, Illinois
VAnderbilt 7-6111

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